

EXHIBIT 3

Transcript of Alexei Ermakov, Ph.D.

1 (1 to 4)

October 26, 2022

<p>1 UNITED STATES DISTRICT COURT</p> <p>2 EASTERN DISTRICT OF MICHIGAN</p> <p>3 SOUTHERN DIVISION</p> <p>4 -----X</p> <p>5 TRUTEK CORP., :</p> <p>6 Plaintiff/Counter-Defendant,: Case No.:</p> <p>7 v. : 2:21-cv-10312</p> <p>8 BLUEWILLOW BIOLOGICS, INC. :</p> <p>9 Defendant/Counter-Plaintiff,:</p> <p>10 ROBIN ROE 1 through 10 :</p> <p>11 (fictitious names); ABC :</p> <p>12 CORPORATION 1 through 10 :</p> <p>13 (fictitious names), :</p> <p>14 Defendants. :</p> <p>15 -----X</p> <p>16</p> <p>17 Deposition of ALEXEI ERMAKOV, PH.D.,</p> <p>18 Conducted Remotely</p> <p>19 Wednesday, October 26, 2022</p> <p>20 10:02 a.m.</p> <p>21</p> <p>22</p> <p>23 Job No.: 468440</p> <p>24 Pages: 1-128</p> <p>25 Reported by: Matthew Goldstein, RMR, CRR</p>	<p>3</p> <p>1 A P P E A R A N C E S</p> <p>2 ON BEHALF OF THE PLAINTIFF, TRUTEK CORP.:</p> <p>3 STANLEY H. KREMEN, ESQUIRE</p> <p>4 4 Lenape Lane</p> <p>5 East Brunswick, New Jersey 08816</p> <p>6 732.593.7294</p> <p>7</p> <p>8 ON BEHALF OF THE DEFENDANT, BLUEWILLOW</p> <p>9 BIOLOGICS, INC.:</p> <p>10 LIANE M. PETERSON, ESQUIRE</p> <p>11 FOLEY & LARDNER</p> <p>12 3000 K Street, NW</p> <p>13 Suite 600</p> <p>14 Washington, D.C. 20007</p> <p>15 202.672.5300</p> <p>16</p> <p>17 ALSO PRESENT:</p> <p>18 EMILY DUNN - REMOTE TECHNICIAN</p> <p>19 JOHN PARKMAN - VIDEOGRAPHER</p> <p>20 ASHOK WAHI</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p>2</p> <p>1 Deposition of ALEXEI ERMAKOV, PH.D.,</p> <p>2 conducted remotely:</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9 Pursuant to Notice, before Matthew Goldstein,</p> <p>10 RMR, CRR, Notary Public in and for the State of</p> <p>11 Maryland.</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p>4</p> <p>1 C O N T E N T S</p> <p>2 EXAMINATION OF ALEXI ERMAKOV, PH.D. PAGE</p> <p>3</p> <p>4 By MS. PETERSON 8</p> <p>5</p> <p>6 E X H I B I T S</p> <p>7 (Attached)</p> <p>8</p> <p>9 ERMAKOV DEPOSITION EXHIBIT PAGE</p> <p>10 Exhibit 27 Previously Marked, 35</p> <p>11 Determination of Surface</p> <p>12 Electrostatic Charge on Nasal</p> <p>13 Application Test Products Test</p> <p>14 Conducted and Report Prepared</p> <p>15 by Alexei Ermakov; Ph. D.</p> <p>16 (Physics), Sr. Consultant</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>

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Transcript of Alexei Ermakov, Ph.D.

2 (5 to 8)

October 26, 2022

<p>5</p> <p>1 THE REMOTE TECHNICIAN: Thank you to</p> <p>2 everyone for attending this proceeding remotely,</p> <p>3 which we anticipate will run smoothly. Please</p> <p>4 remember to speak slowly and do your best not to</p> <p>5 talk over one another. And please be aware that</p> <p>6 we are recording this proceeding for backup</p> <p>7 purposes.</p> <p>8 Any off-the-record discussions should be</p> <p>9 had away from the computer. And please remember</p> <p>10 to mute your mic for those conversations.</p> <p>11 Please have your video enabled to help</p> <p>12 the reporter identify who is speaking. And if you</p> <p>13 are unable connect with video or connecting via</p> <p>14 phone, please identify yourself each time before</p> <p>15 speaking.</p> <p>16 I apologize in advance for any</p> <p>17 technical-related interruptions.</p> <p>18 Thank you.</p> <p>19 THE VIDEOGRAPHER: All right. Just a</p> <p>20 moment please, and I'll get us on the record.</p> <p>21 Here begins Media No. 1 in the</p> <p>22 video-recorded deposition of Dr. Alexei Ermakov,</p> <p>23 in the matter of Trutek Corporation versus</p> <p>24 BlueWillow Biologics Incorporated, et al., in the</p> <p>25 United States District Court for the Eastern</p>	<p>7</p> <p>1 objections other than objections to form will be</p> <p>2 reserved till time of trial.</p> <p>3 MS. PETERSON: Okay.</p> <p>4 MR. KREMEN: Proceed, please.</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p>6</p> <p>1 District of Michigan Southern Division, Case</p> <p>2 No. 2:21-cv-10312.</p> <p>3 Today's date is Wednesday, October 26th,</p> <p>4 2022. The time on the video monitor is now</p> <p>5 10:02 a.m. Eastern Time.</p> <p>6 The remote videographer today is John</p> <p>7 Parkman representing Planet Depos.</p> <p>8 All parties of this video deposition are</p> <p>9 attending remotely.</p> <p>10 Would counsel please voice identify</p> <p>11 themselves and state whom they represent.</p> <p>12 MR. KREMEN: Stanley Kremen for the</p> <p>13 plaintiff, Trutek Corporation.</p> <p>14 MS. PETERSON: Liane Peterson from Foley</p> <p>15 & Lardner LLP on behalf of the defendant,</p> <p>16 BlueWillow Biologics.</p> <p>17 THE VIDEOGRAPHER: The court reporter</p> <p>18 today is Matthew Goldstein, also representing</p> <p>19 Planet Depos.</p> <p>20 Would the reporter please swear in the</p> <p>21 witness.</p> <p>22 MR. KREMEN: Can we have one matter of</p> <p>23 housekeeping, and I wanted that on the record. As</p> <p>24 of the other depositions, we do not agree to the</p> <p>25 usual stipulations. However, we agree that</p>	<p>8</p> <p>1 P R O C E E D I N G S</p> <p>2 Whereupon,</p> <p>3 ALEXEI ERMAKOV, PH.D.,</p> <p>4 being first duly sworn or affirmed to testify to</p> <p>5 the truth, the whole truth, and nothing but the</p> <p>6 truth, was examined and testified as follows:</p> <p>7 EXAMINATION BY COUNSEL FOR THE DEFENDANT</p> <p>8 BY MS. PETERSON:</p> <p>9 Q. Good morning.</p> <p>10 Can you please state your full name and</p> <p>11 address for the record?</p> <p>12 A. I'm Alexei Ermakov. And my home address</p> <p>13 is 731 Liberty Court, Piscataway, New Jersey.</p> <p>14 Q. Thank you.</p> <p>15 And my name is Liane Peterson. I'm one</p> <p>16 of the lawyers that is representing the defendant</p> <p>17 in this litigation, BlueWillow Biologics. And I</p> <p>18 will be taking your deposition today. It's nice</p> <p>19 to meet you.</p> <p>20 A. Nice to meet you, too.</p> <p>21 Q. Dr. Ermakov, have you -- so are you</p> <p>22 located at home today?</p> <p>23 A. Uh-huh. Yes.</p> <p>24 Q. Is there anybody else in the room with</p> <p>25 you?</p>

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Transcript of Alexei Ermakov, Ph.D.

3 (9 to 12)

October 26, 2022

<p>9</p> <p>1 A. No, there's no one else.</p> <p>2 Q. Okay. Thank you.</p> <p>3 Have you had your deposition taken</p> <p>4 before?</p> <p>5 A. No, never.</p> <p>6 Q. So this is your first time?</p> <p>7 A. Yes.</p> <p>8 Q. Well, I'm going to just cover a few</p> <p>9 ground rules with you so that we can try to make</p> <p>10 sure that the deposition goes easily for</p> <p>11 everybody. So I will be asking you a series of</p> <p>12 questions that you will need to respond to.</p> <p>13 Please wait until I finish my question before you</p> <p>14 start to speak, and I will try to do the same when</p> <p>15 you are speaking.</p> <p>16 Is that okay?</p> <p>17 A. Yeah, that's okay.</p> <p>18 Q. Okay. And I will also ask that you</p> <p>19 provide a verbal response to my questions rather</p> <p>20 than shaking your head or nodding or saying --</p> <p>21 A. Okay.</p> <p>22 Q. -- "uh-huh." That way we can make sure</p> <p>23 that the court reporter can take a clear record of</p> <p>24 your answers.</p> <p>25 A. Okay.</p>	<p>11</p> <p>1 A. -- for testing.</p> <p>2 Q. Yes, I understand that you've been</p> <p>3 engaged by Trutek to provide testing in this</p> <p>4 matter. I'm wondering have you ever been engaged</p> <p>5 by another company to provide testing services or</p> <p>6 consulting services related to a litigation?</p> <p>7 A. No, never been.</p> <p>8 Q. Okay. And I understand that with</p> <p>9 respect to your work for Trutek, you have</p> <p>10 performed two rounds of testing for Trutek; is</p> <p>11 that correct?</p> <p>12 A. Yeah, that's correct.</p> <p>13 Q. Have you ever been retained by Trutek to</p> <p>14 provide testing services apart from those two</p> <p>15 instances?</p> <p>16 A. No.</p> <p>17 Q. So there was one round of testing that</p> <p>18 occurred in 2019 -- or 20 -- okay.</p> <p>19 So the first round of testing occurred</p> <p>20 in 2019; is that correct?</p> <p>21 A. I think so.</p> <p>22 Q. And then you were asked to perform a</p> <p>23 second round of testing in 2021; is that correct?</p> <p>24 A. I think so. I don't remember exact</p> <p>25 dates.</p>
<p>10</p> <p>1 Q. If at any point in time you do not</p> <p>2 understand my question or if you need me to repeat</p> <p>3 it, please just ask me, and I can restate.</p> <p>4 Otherwise, I will assume that you understood the</p> <p>5 question.</p> <p>6 Is that okay?</p> <p>7 A. Yeah, that's okay.</p> <p>8 Q. Okay. Dr. Ermakov, are you aware of any</p> <p>9 reason why you would be unable to provide complete</p> <p>10 and truthful testimony during your deposition</p> <p>11 today?</p> <p>12 A. No, I'm not aware of any reason.</p> <p>13 Q. Okay. Thank you.</p> <p>14 Now, Dr. Ermakov, have you ever been</p> <p>15 retained or engaged to provide expert testimony in</p> <p>16 connection with a litigation matter?</p> <p>17 A. No, I have not been retained before.</p> <p>18 That's the first time.</p> <p>19 Q. Okay. Have you ever been retained by a</p> <p>20 company just to provide testing services in</p> <p>21 connection with a litigation, even if you were not</p> <p>22 testifying?</p> <p>23 A. Yes. Well, I've been retained by Trutek</p> <p>24 company --</p> <p>25 Q. Okay. Yeah, I understand that --</p>	<p>12</p> <p>1 Q. So apart from those two times, those are</p> <p>2 the only times that Trutek has asked you to</p> <p>3 perform any testing on their behalf?</p> <p>4 A. Yeah. As far as I remember, that's</p> <p>5 correct, yeah.</p> <p>6 Q. Okay. Has Trutek or Trutek's lawyers</p> <p>7 asked you to conduct any further testing in the</p> <p>8 future?</p> <p>9 A. No.</p> <p>10 Q. Okay. And do you know if you have ever</p> <p>11 been retained by any of Trutek's lawyers to</p> <p>12 provide consulting services or testing services in</p> <p>13 the past?</p> <p>14 A. No.</p> <p>15 Q. Dr. Ermakov, do you recall when you were</p> <p>16 first contacted by Trutek in this matter?</p> <p>17 A. No, I don't remember exact date.</p> <p>18 Q. Do you remember the year?</p> <p>19 A. The year, it was the same year when I</p> <p>20 done my first measurement. So that's...</p> <p>21 Q. So you were first contacted by Trutek</p> <p>22 around the time that you conducted the first round</p> <p>23 of testing; is that correct?</p> <p>24 A. Yes, that's correct. Yeah.</p> <p>25 Q. Okay. And who contacted you?</p>

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4 (13 to 16)

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<p>13</p> <p>1 A. Ashok Wahi contacted me.</p> <p>2 Q. And did Mr. Wahi contact you directly or</p> <p>3 did he first get in touch with Rutgers University?</p> <p>4 A. He contacted me directly because it was</p> <p>5 not related to any work I've done at Rutgers.</p> <p>6 Q. And do you have -- oh, go ahead.</p> <p>7 A. There was no need to contact Rutgers to</p> <p>8 do this testing.</p> <p>9 Q. And do you have an understanding of why</p> <p>10 Mr. Wahi contacted you to perform the testing?</p> <p>11 A. I think so.</p> <p>12 Q. What is that understanding?</p> <p>13 A. Well, I could provide the measurements</p> <p>14 that he required. That's why.</p> <p>15 Q. And what types of measurements did he</p> <p>16 require?</p> <p>17 A. He required to measure charge, surface</p> <p>18 charge on samples that was produced by application</p> <p>19 of different chemicals. So that's what I</p> <p>20 measured.</p> <p>21 Q. So when Mr. Wahi contacted you, he</p> <p>22 explained what type of testing he needed, and you</p> <p>23 confirmed that you would be able to provide that</p> <p>24 type of testing for him; is that correct?</p> <p>25 A. Yeah, that's correct.</p>	<p>15</p> <p>1 Q. And how did you determine or decide to</p> <p>2 charge Trutek \$100 an hour for the measurements</p> <p>3 that you conducted for Trutek?</p> <p>4 A. Well, it's a reasonable rate at the</p> <p>5 time.</p> <p>6 Q. Have you conducted measurements as a</p> <p>7 consultant for any other company in the past?</p> <p>8 A. No, that was the first time I did any</p> <p>9 measurements for anyone.</p> <p>10 Q. And how did you determine that you would</p> <p>11 charge Trutek \$350 an hour for your time spent</p> <p>12 testifying?</p> <p>13 A. Well, it seems like it's a reasonable</p> <p>14 rate right now.</p> <p>15 Q. And it seemed reasonable to charge a</p> <p>16 different rate for testimony that's higher than</p> <p>17 the rate that you charged for the testing</p> <p>18 services?</p> <p>19 A. Yes.</p> <p>20 Q. Okay. How much -- how many hours have</p> <p>21 you billed to Trutek so far on this matter?</p> <p>22 A. I don't remember exact number.</p> <p>23 Q. Can you give me an estimate, please?</p> <p>24 A. Well, approximately ten hours.</p> <p>25 Q. And is that for both rounds of testing?</p>
<p>14</p> <p>1 Q. Dr. Ermakov, if you are asked to testify</p> <p>2 at the trial in this matter, do you plan to do so?</p> <p>3 A. Yes, I plan to do so.</p> <p>4 Q. And will you be compensated for</p> <p>5 testifying at trial?</p> <p>6 A. Yes, I think so.</p> <p>7 Q. And what amount or what hourly rate will</p> <p>8 you be compensated for testifying at trial?</p> <p>9 A. \$350 an hour.</p> <p>10 Q. And is \$350 an hour the rate that you</p> <p>11 have billed Trutek for the testing services that</p> <p>12 you have provided in this matter?</p> <p>13 A. Well, that's the rate I'm charging for</p> <p>14 legal services. There was a different rate for</p> <p>15 providing the consulting that I did on</p> <p>16 measurement.</p> <p>17 Q. Okay. And what is the rate that you</p> <p>18 charged Trutek for the consulting services and the</p> <p>19 measurement that you did?</p> <p>20 A. The measurement -- for the measurements</p> <p>21 I charged \$100 an hour.</p> <p>22 Q. And did you also charge Trutek \$100 an</p> <p>23 hour for preparing the report that described the</p> <p>24 measurements that you took?</p> <p>25 A. Yes. That's what I mean.</p>	<p>16</p> <p>1 A. Yes, for both, everything.</p> <p>2 Q. So approximately ten hours for the two</p> <p>3 rounds of testing and for preparation of the two</p> <p>4 reports; is that correct?</p> <p>5 A. Uh-huh. Yes, that's correct.</p> <p>6 Q. Okay. And out of those approximately</p> <p>7 ten hours, how long did it take you to design the</p> <p>8 measurements -- or design the testing that you</p> <p>9 were going to perform to conduct the measurements?</p> <p>10 A. That was about one hour.</p> <p>11 Q. And approximately how much time did it</p> <p>12 take to complete the measurements?</p> <p>13 A. Well, it depends on the number of</p> <p>14 samples tested. It takes a few hours.</p> <p>15 Q. And approximately how much time did you</p> <p>16 spend preparing the two reports?</p> <p>17 A. Well, also a few hours. I don't</p> <p>18 remember exactly.</p> <p>19 Q. So you mentioned speaking to Mr. Wahi</p> <p>20 about the testing that he required. Did you speak</p> <p>21 to anybody else associated with Trutek prior to</p> <p>22 starting your work on this matter?</p> <p>23 A. No, I was speaking only to Wahi.</p> <p>24 Q. And -- okay. So you did not speak with</p> <p>25 anybody other than Mr. Wahi prior to conducting</p>

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<p>17</p> <p>1 the measurements?</p> <p>2 A. No. Well, there were other people</p> <p>3 present in the room when Wahi explained what needs</p> <p>4 to be done. I didn't speak to anyone else.</p> <p>5 Q. Okay. Are you talking about the first</p> <p>6 conversation that you had with Mr. Wahi --</p> <p>7 A. Yes.</p> <p>8 Q. -- when you said that there were other</p> <p>9 people present?</p> <p>10 A. Yes.</p> <p>11 Q. Do you know who those other people were?</p> <p>12 A. Some people who was working with Wahi,</p> <p>13 yes, partners.</p> <p>14 Q. So maybe some of Mr. Wahi's employees</p> <p>15 from Trutek.</p> <p>16 A. I think so.</p> <p>17 Q. And that first meeting with Mr. Wahi,</p> <p>18 was that a telephone conversation, or did you meet</p> <p>19 with him in person?</p> <p>20 A. I met with him in person.</p> <p>21 Q. Okay. And where did that meeting occur?</p> <p>22 A. At the Trutek.</p> <p>23 Q. And how long did that meeting last?</p> <p>24 A. About an hour.</p> <p>25 Q. Okay. And what did Mr. Wahi explain to</p>	<p>19</p> <p>1 substrate that reasonable amount should be applied</p> <p>2 to?</p> <p>3 A. Yes, he explained that.</p> <p>4 Q. What did he tell you?</p> <p>5 A. Well, he suggested to use printer paper</p> <p>6 for that.</p> <p>7 Q. And did you agree with Mr. Wahi that</p> <p>8 printer paper would be an appropriate substrate</p> <p>9 for your test and measurements?</p> <p>10 A. Yes, it seemed a good choice and was</p> <p>11 easy to do the testing on.</p> <p>12 Q. Okay.</p> <p>13 A. And was a good substrate for those</p> <p>14 measurements.</p> <p>15 Q. So you understood that the printer paper</p> <p>16 would be a good choice because it would be easy to</p> <p>17 do the testing on; is that correct?</p> <p>18 MR. KREMEN: Objection to the form of</p> <p>19 the question.</p> <p>20 You may answer.</p> <p>21 THE WITNESS: Yes, there were several</p> <p>22 different factors in play, and it seems that</p> <p>23 printer paper would satisfy many of them.</p> <p>24 BY MS. PETERSON:</p> <p>25 Q. Okay.</p>
<p>18</p> <p>1 you at that meeting about the testing services he</p> <p>2 required?</p> <p>3 A. He explained that he needs to measure a</p> <p>4 charge produced by application of chemicals. So</p> <p>5 that's what I measured.</p> <p>6 Q. Did he explain to you whether those</p> <p>7 chemicals to be applied would be a liquid or some</p> <p>8 other composition?</p> <p>9 A. Yeah, he did show different kinds of</p> <p>10 chemicals, some liquid, some gel, and that kind of</p> <p>11 stuff.</p> <p>12 Q. And did Mr. Wahi explain how he wanted</p> <p>13 those products to be applied to a substrate for</p> <p>14 testing?</p> <p>15 MR. KREMEN: Objection to the form of</p> <p>16 the question.</p> <p>17 You may answer.</p> <p>18 THE WITNESS: Yes, he did explain.</p> <p>19 BY MS. PETERSON:</p> <p>20 Q. Okay. What did he explain to you about</p> <p>21 the substrate?</p> <p>22 A. Well, he said apply a reasonable amount.</p> <p>23 Kind of just the way they would be applied when</p> <p>24 normally used.</p> <p>25 Q. Okay. And did he explain what type of</p>	<p>20</p> <p>1 A. It was a good choice.</p> <p>2 Q. Okay. And what were those several</p> <p>3 different factors in play?</p> <p>4 A. Well, one of them was ease of sample</p> <p>5 preparation, sample weight, and the way printer</p> <p>6 paper holds chemicals.</p> <p>7 Q. Okay. Any other factors?</p> <p>8 A. No, that's all.</p> <p>9 Q. And then you said that it seemed that</p> <p>10 printer paper would satisfy many of those factors;</p> <p>11 right?</p> <p>12 A. Uh-huh.</p> <p>13 Q. Is that a "yes"?</p> <p>14 A. Yes.</p> <p>15 Q. Okay. Are there any factors that you</p> <p>16 believed would be relevant that printer paper</p> <p>17 would not satisfy?</p> <p>18 A. No, it's a good choice.</p> <p>19 Q. Okay. Approximately how long after that</p> <p>20 first meeting with Mr. Wahi did you start the</p> <p>21 first round of testing?</p> <p>22 A. It was a few days.</p> <p>23 Q. And did you do the testing in your</p> <p>24 laboratory at Rutgers?</p> <p>25 A. Well, it was done in my office.</p>

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<p>21</p> <p>1 Q. Okay. And is that your office in 2 Rutgers or your home office?</p> <p>3 A. It's my office at Rutgers.</p> <p>4 Q. And just to make sure I understand, do 5 you also have a laboratory that you work out of at 6 Rutgers?</p> <p>7 A. Yeah, I have a laboratory, as well.</p> <p>8 Q. Okay.</p> <p>9 A. This setup was not related to any work I 10 do at Rutgers. So it could be done anywhere, like 11 in my home. It just was easy to do in my office 12 at Rutgers.</p> <p>13 Q. Okay. So the setup was not related to 14 any of the work that you do at Rutgers, but rather 15 it could be conducted anywhere. Is that what you 16 said?</p> <p>17 A. Yes, that's correct.</p> <p>18 Q. Okay. So you did the setup and testing 19 in your office at Rutgers?</p> <p>20 A. Uh-huh. Yes.</p> <p>21 Q. Okay. Did you have any other 22 conversations with Mr. Wahi or anyone else at 23 Trutek before starting the testing?</p> <p>24 A. Well, I had conversations -- so I had 25 some discussions before we went to do the testing.</p>	<p>23</p> <p>1 apparatus specifically for that, for those 2 measurements.</p> <p>3 Q. And just so I can make sure I heard that 4 correctly, you said that you built the apparatus 5 that you used to measure the charge specifically 6 for these testing experiments for Trutek; is that 7 correct?</p> <p>8 A. Yeah, that's correct.</p> <p>9 Q. Okay. The apparatus that you used to 10 measure the charge in the testing that you 11 conducted for Trutek, have you used that for any 12 other purpose before?</p> <p>13 A. No, I didn't use it for any purpose 14 before. Well, it was the first time I used it for 15 anything.</p> <p>16 Q. Okay. And have you used that apparatus 17 for any other testing?</p> <p>18 A. I have used it later on, but unrelated 19 testing.</p> <p>20 Q. Okay. Did Mr. Wahi make any suggestions 21 to you about how many times the samples should be 22 tested?</p> <p>23 A. Yes, he suggested to test several times 24 a sample.</p> <p>25 Q. And did Mr. Wahi make any suggestions to</p>
<p>22</p> <p>1 So that's -- if that's the question.</p> <p>2 Q. Okay. How many conversations did you 3 have with Mr. Wahi before conducting the first 4 round of testing?</p> <p>5 A. I don't remember exactly.</p> <p>6 Q. Was it more than one?</p> <p>7 A. We may have discussed something over the 8 phone, like before he would come, but that was 9 mostly some technical -- well, just how to -- when 10 he would come and what kind of samples he will 11 bring.</p> <p>12 Q. Okay. Did Mr. Wahi provide any other 13 instructions to you about the testing in addition 14 to -- sorry, let me start over again.</p> <p>15 Did Mr. Wahi provide any other 16 instructions to you about the testing other than 17 using printer paper as the substrate?</p> <p>18 A. No. He just said that here are the 19 chemicals that needs to be tested.</p> <p>20 Q. And so --</p> <p>21 A. We decided to use printer paper.</p> <p>22 Q. Okay. Did Mr. Wahi make any suggestions 23 to you about what equipment should be used to 24 measure the charge?</p> <p>25 A. No, it was my choice to build the</p>	<p>24</p> <p>1 you about what type of controls should be used in 2 your testing?</p> <p>3 A. Could you clarify what kind of controls? 4 What do you mean by control?</p> <p>5 Q. Well, so, for example, in the second 6 round of testing, you measured the charge on a 7 blank piece of paper. Do you recall that?</p> <p>8 A. Uh-huh. Yes.</p> <p>9 Q. Okay. Was that your decision to use a 10 control or did Mr. Wahi suggest that you add a 11 control for the second round of testing?</p> <p>12 A. Well, that's common sense to use a 13 control to check what's the measurement without 14 any chemical.</p> <p>15 Q. Okay. Did Mr. Wahi make any suggestions 16 to you about the size of the printer paper 17 substrate to be used?</p> <p>18 A. No, that was my decision. It was 19 optimum size for that apparatus.</p> <p>20 Q. And did Mr. Wahi make any suggestions to 21 you about the area of the substrate on which the 22 samples should be applied?</p> <p>23 A. No, that was my decision. Because I was 24 designing the apparatus, and that's the sample 25 that was required for that apparatus.</p>

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<p>25</p> <p>1 Q. And after you designed the apparatus for</p> <p>2 this testing, did you explain to Mr. Wahi what you</p> <p>3 planned to do?</p> <p>4 A. Yes, we discussed -- well, I explained</p> <p>5 to him at our meeting how I'm going to measure the</p> <p>6 charge and what kind of apparatus I'm going to</p> <p>7 build.</p> <p>8 Q. Okay. And after you explained that to</p> <p>9 Mr. Wahi, did he offer any further suggestions or</p> <p>10 ask for any changes?</p> <p>11 A. No, he didn't ask for any changes.</p> <p>12 Q. Okay. Do you understand that Trutek</p> <p>13 also hired another individual to conduct testing</p> <p>14 on the charge of the test samples?</p> <p>15 A. Yes.</p> <p>16 Q. Okay. And his name is Mr. Shane Burns;</p> <p>17 correct?</p> <p>18 A. Uh-huh. Yes.</p> <p>19 Q. Have you ever met Mr. Burns?</p> <p>20 A. Yes, I met him once.</p> <p>21 Q. When did you meet him?</p> <p>22 A. It was -- I don't remember exact date,</p> <p>23 but it was a couple of weeks ago.</p> <p>24 Q. Okay.</p> <p>25 A. Maybe a month ago.</p>	<p>27</p> <p>1 at that meeting?</p> <p>2 A. Well, I did show my apparatus, and</p> <p>3 that's about it.</p> <p>4 Q. And why did Mr. Burns come to meet with</p> <p>5 you in your office about a month ago?</p> <p>6 A. It was in preparation for my testimony,</p> <p>7 for my deposition.</p> <p>8 Q. Was there anybody else at this meeting</p> <p>9 besides you and Mr. Burns?</p> <p>10 A. There was Attorney Stanley Kremen and</p> <p>11 Ashok present.</p> <p>12 Q. So Mr. Kremen and Mr. Wahi were present?</p> <p>13 A. Yes.</p> <p>14 Q. What about Dr. Lemmo, was he at that</p> <p>15 meeting?</p> <p>16 A. Lemmo?</p> <p>17 Q. Do you know that name, Dr. Lemmo?</p> <p>18 A. Yes, I know that name.</p> <p>19 Q. Okay. Was Dr. Lemmo at the meeting in</p> <p>20 your office with Mr. Burns, Mr. Kremen, and</p> <p>21 Mr. Wahi?</p> <p>22 A. No.</p> <p>23 Q. Did you have a separate meeting with</p> <p>24 Dr. Lemmo at some point in time?</p> <p>25 A. Well, as I said before, I cannot -- I'm</p>
<p>26</p> <p>1 Q. Okay. And where was that meeting?</p> <p>2 A. It was in my office.</p> <p>3 Q. So Mr. Burns came to your office in</p> <p>4 Rutgers?</p> <p>5 A. Uh-huh.</p> <p>6 Q. Is that a "yes"?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. So Mr. Burns came to your office</p> <p>9 in Rutgers sometime within the last month;</p> <p>10 correct?</p> <p>11 A. It depends -- well, at -- you know,</p> <p>12 maybe I don't remember. Maybe he didn't. Let me</p> <p>13 see. No, I don't remember. I'm not good with</p> <p>14 names.</p> <p>15 Q. Oh, I'm not suggesting that it didn't</p> <p>16 happen. I'm just trying to figure out --</p> <p>17 A. Maybe I -- let me check something.</p> <p>18 Yes. Okay. All right. Continue.</p> <p>19 Q. Okay. Were you able to confirm whether</p> <p>20 you met with Mr. Burns in your office previously?</p> <p>21 A. Yes.</p> <p>22 Q. Okay. So when did the meeting with</p> <p>23 Mr. Burns occur?</p> <p>24 A. About a month ago.</p> <p>25 Q. And what did you and Mr. Burns discuss</p>	<p>28</p> <p>1 not good remembering names. Can I -- well, let me</p> <p>2 make sure. Well, can I --</p> <p>3 Q. You --</p> <p>4 A. Can I ask Stanley to confirm?</p> <p>5 Q. I'm sorry --</p> <p>6 A. I'm not --</p> <p>7 Q. Hang on one second. Hang on.</p> <p>8 What are you asking to confirm?</p> <p>9 THE WITNESS: Who was at that meeting?</p> <p>10 Lemmo or --</p> <p>11 MS. PETERSON: Mr. Kremen, can you</p> <p>12 confirm who was at that meeting?</p> <p>13 MR. KREMEN: Yes. Yes, I'm glad you</p> <p>14 asked me. Okay. It was Dr. Lemmo, Ashok Wahi,</p> <p>15 and myself. To my knowledge, Dr. Ermakov has</p> <p>16 never met Shane Burns.</p> <p>17 MS. PETERSON: Okay.</p> <p>18 THE WITNESS: Right. Yeah, that is what</p> <p>19 I was asking. I was struggling with it.</p> <p>20 BY MS. PETERSON:</p> <p>21 Q. Okay.</p> <p>22 A. I didn't remember names. So...</p> <p>23 Q. Okay. So at this meeting in your</p> <p>24 office, you showed your apparatus to Dr. Lemmo; is</p> <p>25 that correct?</p>

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<p style="text-align: right;">29</p> <p>1 A. Yes, that's correct.</p> <p>2 Q. Okay. And why did Dr. Lemmo come to</p> <p>3 view your apparatus?</p> <p>4 MR. KREMEN: Objection to the form of</p> <p>5 the question.</p> <p>6 THE WITNESS: Can I answer?</p> <p>7 MR. KREMEN: Yeah, go ahead.</p> <p>8 THE WITNESS: Well, I guess he wanted to</p> <p>9 see the way I measured the charge.</p> <p>10 BY MS. PETERSON:</p> <p>11 Q. Okay. So I understand based on</p> <p>12 counsel's representation that Mr. Burns was not at</p> <p>13 that meeting. However, Dr. Ermakov, I would like</p> <p>14 to know if you've ever had a telephone</p> <p>15 conversation with Mr. Burns?</p> <p>16 A. No, I never had.</p> <p>17 Q. So you've never spoken to Mr. Burns.</p> <p>18 A. No.</p> <p>19 Q. Have you ever heard of the company that</p> <p>20 he is employed by, Electro-Tech Systems?</p> <p>21 A. No, I never heard about that company.</p> <p>22 Q. Okay. Dr. Ermakov, did you speak with</p> <p>23 anybody at Rutgers, any of your colleagues at</p> <p>24 Rutgers, while you were designing the test that</p> <p>25 you were going to conduct for Trutek?</p>	<p style="text-align: right;">31</p> <p>1 A. Same, I provided to Ashok.</p> <p>2 Q. And after you provided the second report</p> <p>3 to Mr. Wahi, did he request any changes or ask</p> <p>4 that anything be added to the report?</p> <p>5 A. No, he didn't ask anything.</p> <p>6 Q. He did not ask for any changes to be</p> <p>7 made to the second report; is that correct?</p> <p>8 A. Yeah, that's correct.</p> <p>9 Q. Okay. When you met with Mr. Wahi to</p> <p>10 discuss the testing, did Mr. Wahi explain to you</p> <p>11 how your measurements would be used by Trutek?</p> <p>12 A. Yes, he explained about -- to do the</p> <p>13 measurement for his patent litigation, what he was</p> <p>14 in.</p> <p>15 Q. Okay. So Mr. Wahi explained that the</p> <p>16 measurements would be used for a patent</p> <p>17 litigation; correct?</p> <p>18 A. Yes, that's correct.</p> <p>19 Q. Did he provide any other explanation</p> <p>20 about how he intended to use the results?</p> <p>21 A. No, he just explained that he needs to</p> <p>22 measure whether there is any charge produced by</p> <p>23 chemicals. That's all there is.</p> <p>24 Q. Did Mr. Wahi provide you with any</p> <p>25 explanation about the subject matter of the</p>
<p style="text-align: right;">30</p> <p>1 A. No, I didn't speak to anyone.</p> <p>2 Q. Okay. So you did not consult with any</p> <p>3 of your colleagues at Rutgers regarding the</p> <p>4 testing process?</p> <p>5 A. No, it was only my idea and design. I</p> <p>6 didn't speak to anyone.</p> <p>7 Q. And you did not speak to anyone else</p> <p>8 apart from Mr. Wahi when designing the experiment</p> <p>9 that you conducted for Trutek?</p> <p>10 A. No, I didn't speak to anyone else.</p> <p>11 Q. Okay. Did you consult with anybody else</p> <p>12 after conducting the test when interpreting the</p> <p>13 results?</p> <p>14 A. No, I just did the measurement and</p> <p>15 didn't talk to anyone.</p> <p>16 Q. Okay. And after you prepared your first</p> <p>17 report, who did you provide a copy of it to?</p> <p>18 A. I provided it to Ashok.</p> <p>19 Q. And did Mr. Wahi request any changes or</p> <p>20 anything additional to be included in that first</p> <p>21 report after you provided him the draft?</p> <p>22 A. No, I just provided the data and report.</p> <p>23 That was it.</p> <p>24 Q. Okay. After you prepared your second</p> <p>25 report, who did you provide a copy to?</p>	<p style="text-align: right;">32</p> <p>1 patent?</p> <p>2 A. Yes, he explained his patent.</p> <p>3 Q. What did he explain to you?</p> <p>4 A. He explained that the presence of the</p> <p>5 charge is important for function of his chemicals</p> <p>6 that is for the product that he's making. So it's</p> <p>7 really important. That's all there is. And</p> <p>8 that's the point of the patent.</p> <p>9 Q. Okay. Did Mr. Wahi tell you anything</p> <p>10 else about the samples that he was going to ask</p> <p>11 you to test other than that they contained</p> <p>12 chemicals and were liquid and a gel?</p> <p>13 A. No, he just said that here are the</p> <p>14 chemicals that needs to be tested. That's all.</p> <p>15 Q. Okay. Did Mr. Wahi explain to you how</p> <p>16 the products were going to be used?</p> <p>17 A. Yes, he explained his product that he</p> <p>18 uses those chemicals to prevent the allergen</p> <p>19 getting into the nose and pollen or whatever.</p> <p>20 Q. Okay. So he explained to you that the</p> <p>21 products were intended to be applied to the nose</p> <p>22 of a person; is that right?</p> <p>23 A. Uh-huh.</p> <p>24 Q. Is that a "yes"?</p> <p>25 A. Yes.</p>

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<p>33</p> <p>1 Q. Okay. Thank you.</p> <p>2 Given that the products were intended to</p> <p>3 be applied to the nose of a person, was that a</p> <p>4 factor that you considered in assessing whether</p> <p>5 printer paper was an appropriate substrate for the</p> <p>6 measurements?</p> <p>7 MR. KREMEN: Objection to form.</p> <p>8 You may answer.</p> <p>9 THE WITNESS: Well, the substrate</p> <p>10 actually didn't matter much in those measurements</p> <p>11 because the measurement measures chemicals</p> <p>12 themselves. Substrate is irrelevant in my</p> <p>13 apparatus how it's used. So the only</p> <p>14 consideration was use of sample preparation.</p> <p>15 BY MS. PETERSON:</p> <p>16 Q. When you say the measurement measures</p> <p>17 the chemicals themselves, what do you mean by</p> <p>18 that?</p> <p>19 A. That the way how apparatus is designed,</p> <p>20 it measures -- the sample rotates and only half of</p> <p>21 the sample is covered with the chemicals. So the</p> <p>22 apparatus looks at the difference between their</p> <p>23 substrate and the substrate covered with the</p> <p>24 chemicals. So whatever contribution of substrate</p> <p>25 is eliminated automatically. So --</p>	<p>35</p> <p>1 measured charge. It's not the current.</p> <p>2 Q. Okay.</p> <p>3 A. So --</p> <p>4 Q. Let's pull up a copy of your report and</p> <p>5 take a look at it.</p> <p>6 MR. KREMEN: That was Exhibit --</p> <p>7 MS. PETERSON: This was marked yesterday</p> <p>8 as Exhibit 27. Can we pull that up and share it</p> <p>9 on the screen, please.</p> <p>10 (Deposition Exhibit 27, Previously</p> <p>11 Marked.)</p> <p>12 THE REMOTE TECHNICIAN: Exhibit 27, you</p> <p>13 said, Counsel?</p> <p>14 MS. PETERSON: Yes.</p> <p>15 THE REMOTE TECHNICIAN: Stand by.</p> <p>16 My apologies, Counsel, it doesn't seem</p> <p>17 that I have 27 in the exhibits that were uploaded.</p> <p>18 MS. PETERSON: Okay.</p> <p>19 THE REMOTE TECHNICIAN: The last number</p> <p>20 I have marked is 22.</p> <p>21 MS. PETERSON: Okay. Let me see</p> <p>22 something real quick.</p> <p>23 MR. KREMEN: Liane, do you need a list</p> <p>24 of what the exhibits for 23 are, or do you have</p> <p>25 those?</p>
<p>34</p> <p>1 Q. Okay.</p> <p>2 A. -- it doesn't matter what kind of</p> <p>3 substrate it used. It measures the chemicals</p> <p>4 themselves.</p> <p>5 Q. Okay. But what I was wondering is what</p> <p>6 were you measuring in those chemicals?</p> <p>7 A. It measures -- it directly measures the</p> <p>8 charge of the chemical. So the way how apparatus</p> <p>9 is designed, we can calculate its calibration just</p> <p>10 from measuring parts of apparatus, the size of</p> <p>11 electrode and of the amplifier and stuff like</p> <p>12 that. And we can get pretty good -- well, better</p> <p>13 than order of magnitude accuracy of measurement</p> <p>14 with no need of any reference of calibration.</p> <p>15 Just so you can get a good measurement of</p> <p>16 chemicals themselves.</p> <p>17 Q. Okay. So you were just explaining how</p> <p>18 the apparatus was designed so that you could get a</p> <p>19 measurement of the charge of just the chemical as</p> <p>20 opposed to the substrate; is that right?</p> <p>21 A. Uh-huh. Yes, that's right.</p> <p>22 Q. Now, in terms of the measurement itself,</p> <p>23 the direct measurement was induced current;</p> <p>24 correct?</p> <p>25 A. Yes, that's correct. The measurement --</p>	<p>36</p> <p>1 MS. PETERSON: No, I have that.</p> <p>2 MR. KREMEN: Okay. I just thought I'd</p> <p>3 help.</p> <p>4 MS. PETERSON: Thank you.</p> <p>5 So, Emily, do you see a file that says 9</p> <p>6 Ermakov?</p> <p>7 THE REMOTE TECHNICIAN: Yes.</p> <p>8 MS. PETERSON: Okay. That's the same</p> <p>9 document. We can pull that up. It's just not a</p> <p>10 marked copy.</p> <p>11 THE REMOTE TECHNICIAN: Okay. Stand by.</p> <p>12 BY MS. PETERSON:</p> <p>13 Q. Okay. So for the record, this is a copy</p> <p>14 of a document titled "Determination of Surface</p> <p>15 Electrostatic Charge on Nasal Application Test</p> <p>16 Products. Test Conducted and Report Prepared by</p> <p>17 Alexei Ermakov, Ph.D. (Physics), Sr. Consultant."</p> <p>18 And this was previously marked as</p> <p>19 Exhibit 27.</p> <p>20 MS. PETERSON: If we could scroll down</p> <p>21 to the bottom of this first page.</p> <p>22 BY MS. PETERSON:</p> <p>23 Q. The date on the report is January 11th,</p> <p>24 2021.</p> <p>25 Dr. Ermakov, do you recognize this</p>

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<p>1 report?</p> <p>2 A. Yes, that's the report I prepared.</p> <p>3 Q. Okay. And this is the second report</p> <p>4 that you prepared; correct?</p> <p>5 A. Yes, that's correct.</p> <p>6 Q. Okay.</p> <p>7 MS. PETERSON: And then if we could look</p> <p>8 at the last page, please. And scroll down to the</p> <p>9 bottom.</p> <p>10 BY MS. PETERSON:</p> <p>11 Q. Is that your signature on the final</p> <p>12 page?</p> <p>13 A. Yes, that's my signature.</p> <p>14 Q. Okay.</p> <p>15 MS. PETERSON: Let's go back to the</p> <p>16 second page.</p> <p>17 And we'll go to the bottom of the page,</p> <p>18 please. That's good.</p> <p>19 BY MS. PETERSON:</p> <p>20 Q. So, Dr. Ermakov, the last paragraph on</p> <p>21 this report, it refers to -- it states, "During</p> <p>22 the sample spinning, treated and untreated surface</p> <p>23 repeatedly moved under the sensing electrode..."</p> <p>24 Do you see that?</p> <p>25 A. Yes.</p>	<p>37</p> <p>39</p> <p>1 So it's not quite complete explanation of how the</p> <p>2 apparatus works. But it's a -- it's all explained</p> <p>3 later. Like on the next page, if you go to the</p> <p>4 formula that shows -- so surface charge</p> <p>5 calculates. So that completes the explanation of</p> <p>6 how apparatus works.</p> <p>7 Q. Okay. So you calculated the surface</p> <p>8 charge Q.</p> <p>9 A. Uh-huh.</p> <p>10 Q. Is that a "yes"?</p> <p>11 A. Yes.</p> <p>12 Q. Okay. So you calculated the surface</p> <p>13 charge Q by inputting the voltage that was</p> <p>14 measured on the sensing electrode; right?</p> <p>15 A. Yeah, the voltage that is measured on</p> <p>16 the capacitor. Capacitor is an important part of</p> <p>17 this apparatus. Because the voltage across the</p> <p>18 capacitor is proportional to the charge that went</p> <p>19 into the capacitor. So that's how it measures</p> <p>20 charge.</p> <p>21 Q. Okay. So you directly measured the</p> <p>22 voltage, and then from that you were able to</p> <p>23 calculate the charge; is that correct?</p> <p>24 A. That's correct. Yes.</p> <p>25 Q. Okay. And while we're talking about</p>
<p>38</p> <p>1 Q. Okay. And then you go on to explain</p> <p>2 that "the induced image creates an AC electrical</p> <p>3 current in the circuitry connected to the sensing</p> <p>4 electrode of the apparatus."</p> <p>5 Is that an accurate description of the</p> <p>6 process?</p> <p>7 A. Yes. That's part of the process, yes.</p> <p>8 Q. Okay. And then the final sentence says,</p> <p>9 "The induced current is measured and is</p> <p>10 proportional to the surface electrostatic charge";</p> <p>11 is that correct?</p> <p>12 A. Well, it's not entirely accurate</p> <p>13 because -- well, I should maybe phrase it</p> <p>14 differently because the induced current, actually</p> <p>15 it's applied to the capacitor. Like you have to</p> <p>16 look at the diagram of the apparatus. And the</p> <p>17 capacitor voltage across the capacitor is</p> <p>18 proportional to the charge. So this sentence</p> <p>19 doesn't go all the way to explain what's being</p> <p>20 measured unfortunately.</p> <p>21 Q. Okay. So you're telling me that this</p> <p>22 final sentence in your report is not entirely</p> <p>23 accurate?</p> <p>24 A. Well, it was meant as a brief report,</p> <p>25 and not like all the details got into this report.</p>	<p>40</p> <p>1 this, you also have in the formula A, which is the</p> <p>2 area of the sample under the sensing electrode;</p> <p>3 right?</p> <p>4 A. Yes, that's correct. Yeah.</p> <p>5 Q. And what was that area that you applied</p> <p>6 in the formula?</p> <p>7 A. It was about 10 square millimeters. So</p> <p>8 that area was measured from actual size of the</p> <p>9 electrode in the apparatus was about 1 millimeter</p> <p>10 wide and 10 millimeters long.</p> <p>11 Q. Oh, so the area is based on the size of</p> <p>12 the sensing electrode; is that correct?</p> <p>13 A. Yes, that's correct. Yeah.</p> <p>14 Q. Okay. So it's not based on the size of</p> <p>15 the substrate itself?</p> <p>16 A. No.</p> <p>17 Q. Okay. So you measured the bottom of the</p> <p>18 sensing electrode, and it was 1 millimeter wide by</p> <p>19 10 millimeters long?</p> <p>20 A. Yes, that's correct. Yes.</p> <p>21 Q. Okay. Did Mr. Wahi contact you sometime</p> <p>22 in 2021 to conduct the second round of testing</p> <p>23 that's described in this report marked as</p> <p>24 Exhibit 27?</p> <p>25 A. Yes, he did.</p>

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<p>41</p> <p>1 Q. Do you recall when he contacted you?</p> <p>2 A. No, I don't remember exact date, but</p> <p>3 sometime before.</p> <p>4 Q. So sometime like maybe a few weeks</p> <p>5 before the testing occurred?</p> <p>6 A. Yeah, maybe a few weeks. It's been a</p> <p>7 while. My memory is kind of hazy.</p> <p>8 Q. Okay. And when Mr. Wahi contacted you</p> <p>9 about the second round of testing, was that by</p> <p>10 phone, or did you have another in-person meeting?</p> <p>11 A. I think it was by phone.</p> <p>12 Q. And did anybody else join that telephone</p> <p>13 conference?</p> <p>14 A. No, he just said that he needs to do</p> <p>15 more testing. But that's all.</p> <p>16 Q. Okay. But I'm wondering was there</p> <p>17 anybody else on that telephone besides you and</p> <p>18 Mr. Wahi?</p> <p>19 A. No, there was no one else.</p> <p>20 Q. Okay. And Mr. Wahi told you that he</p> <p>21 needed to do more testing; is that correct?</p> <p>22 A. Yes.</p> <p>23 Q. Can you -- why did he say he needed to</p> <p>24 do more testing?</p> <p>25 MR. KREMEN: Objection to the form of</p>	<p>43</p> <p>1 Q. How were they labeled?</p> <p>2 A. Just some numbers, as I remember.</p> <p>3 Q. Okay. If you look up on --</p> <p>4 MS. PETERSON: Let's scroll up to</p> <p>5 page 2, a little further on page 2. Yeah, right</p> <p>6 here.</p> <p>7 BY MS. PETERSON:</p> <p>8 Q. Do you see there are three products</p> <p>9 listed here, TTK-APB is the first product; right?</p> <p>10 A. Uh-huh.</p> <p>11 Q. Is that a "yes"?</p> <p>12 A. Yes.</p> <p>13 Q. Okay. And then there's a second product</p> <p>14 identified as TTK-NS?</p> <p>15 A. Uh-huh.</p> <p>16 Q. Is that a "yes"?</p> <p>17 A. Yes.</p> <p>18 Q. And then the final product is BW-NBP?</p> <p>19 A. Yes.</p> <p>20 Q. Is that -- okay.</p> <p>21 So the unmarked containers that you</p> <p>22 received from Mr. Wahi, did they have these labels</p> <p>23 on them?</p> <p>24 A. I don't really remember that.</p> <p>25 Q. So do you remember anything about what</p>
<p>42</p> <p>1 the question.</p> <p>2 You may answer.</p> <p>3 THE WITNESS: Well, he didn't explain.</p> <p>4 BY MS. PETERSON:</p> <p>5 Q. Did he explain to you that the testing</p> <p>6 should be -- would be different from your first</p> <p>7 round of testing?</p> <p>8 A. No, just more testing, that's all.</p> <p>9 Q. So same -- so basically Mr. Wahi asked</p> <p>10 you to run the same test, just with new samples?</p> <p>11 A. Yeah, just repeat test just to confirm</p> <p>12 the results of the first measurement.</p> <p>13 Q. Is it your understanding that you were</p> <p>14 testing different chemical products for the second</p> <p>15 round of testing?</p> <p>16 A. No, I have no idea what kind of</p> <p>17 chemicals.</p> <p>18 Q. Okay.</p> <p>19 A. They were unmarked chemicals. And I</p> <p>20 don't know exactly what was the measures in the</p> <p>21 second. That was kind of blind test in a sense.</p> <p>22 Q. Okay. What do you mean that they were</p> <p>23 unmarked chemicals?</p> <p>24 A. Well, there were some bottles, like one,</p> <p>25 two, three.</p>	<p>44</p> <p>1 numbers were marked on the bottles that you</p> <p>2 received from Mr. Wahi for testing?</p> <p>3 A. No, I don't remember. It's been a long</p> <p>4 time ago.</p> <p>5 Q. Did you take any pictures of the</p> <p>6 containers or the bottles that you were asked to</p> <p>7 test?</p> <p>8 A. No, I didn't take any pictures.</p> <p>9 Q. Okay. When Mr. Wahi contacted you about</p> <p>10 the second round of testing, did he ask you to</p> <p>11 make any changes to your test method?</p> <p>12 A. No, he didn't ask me to do any changes.</p> <p>13 Q. Okay. So he simply asked you to repeat</p> <p>14 the same test using new samples?</p> <p>15 A. Right. Yeah, to do the same thing.</p> <p>16 Yes, asked me to repeat, to do more testing.</p> <p>17 Q. Okay. Can you recall anything else that</p> <p>18 Mr. Wahi might have explained to you during that</p> <p>19 conversation about the second testing?</p> <p>20 A. No, I don't think he explained anything,</p> <p>21 any more than was the first time.</p> <p>22 MS. PETERSON: Okay. We've been going</p> <p>23 for about an hour. How about we go off the record</p> <p>24 and take a break now.</p> <p>25 THE WITNESS: Okay.</p>

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<p>45</p> <p>1 THE VIDEOGRAPHER: We're going off the</p> <p>2 record. The time is now 11:04 a.m.</p> <p>3 (Recess from the record.)</p> <p>4 THE VIDEOGRAPHER: We're back on the</p> <p>5 record. The time is now 11:18 a.m.</p> <p>6 BY MS. PETERSON:</p> <p>7 Q. Welcome back, Dr. Ermakov. Did you</p> <p>8 speak with anybody during the break about the</p> <p>9 testimony that you've given so far in this</p> <p>10 deposition?</p> <p>11 A. No, I didn't speak to anyone.</p> <p>12 Q. Okay. Thank you.</p> <p>13 So focusing again on the second round of</p> <p>14 testing that you did for Trutek, I think you</p> <p>15 explained that you followed the same test method</p> <p>16 that you did in the first round of testing;</p> <p>17 correct?</p> <p>18 A. Yes, that's correct.</p> <p>19 Q. Okay. So you did not make any changes</p> <p>20 to the apparatus --</p> <p>21 A. No.</p> <p>22 Q. -- in conducting the second round of</p> <p>23 testing?</p> <p>24 A. No, I did not make any changes.</p> <p>25 Q. And no other changes to the process for</p>	<p>47</p> <p>1 Q. Did you review that report?</p> <p>2 A. Yes, I looked through it.</p> <p>3 Q. Okay. So you understand that he used a</p> <p>4 different method than you to measure surface</p> <p>5 charge; correct?</p> <p>6 A. Uh-huh. Yes, that's correct.</p> <p>7 Q. And he used different equipment, as</p> <p>8 well?</p> <p>9 A. Uh-huh.</p> <p>10 Q. Is that yes?</p> <p>11 A. Yes.</p> <p>12 Q. Mr. Burns also tested the compositions</p> <p>13 on a different substrate, as well; right?</p> <p>14 A. Yes, that's right.</p> <p>15 Q. Okay. He used pigskin instead of</p> <p>16 printer paper?</p> <p>17 A. Uh-huh. Yes.</p> <p>18 Q. Have you ever used pigskin as a</p> <p>19 substrate for measuring electrostatic surface</p> <p>20 charge before?</p> <p>21 A. No, I never used pigskin.</p> <p>22 Q. Okay. Did Mr. Wahi ask you if you could</p> <p>23 conduct your measurements of surface charge on</p> <p>24 pigskin?</p> <p>25 A. Well, he explained different ways how it</p>
<p>46</p> <p>1 sample preparation either; is that correct?</p> <p>2 A. Yes, that's correct.</p> <p>3 Q. Okay. So the only difference was that</p> <p>4 you were testing new samples?</p> <p>5 A. Yeah, that's my understanding.</p> <p>6 Q. Okay. Before conducting the second</p> <p>7 round of testing, did you consult with any of your</p> <p>8 colleagues about the test method that you were</p> <p>9 planning to use?</p> <p>10 A. No, I did not.</p> <p>11 Q. Okay. So you did not consult with</p> <p>12 anybody about the test method that you were</p> <p>13 planning to use for the second round of testing</p> <p>14 apart from your discussion with Mr. Wahi; is that</p> <p>15 correct?</p> <p>16 A. Yes. Yes, that's correct.</p> <p>17 Q. Okay. And going back to Mr. Burns, the</p> <p>18 other individual who conducted testing for Trutek,</p> <p>19 did you receive a copy of either of his test</p> <p>20 reports?</p> <p>21 A. Well, I have a copy of at least one</p> <p>22 report.</p> <p>23 Q. Okay. You have a copy of at least one</p> <p>24 of Mr. Burns' reports; is that correct?</p> <p>25 A. Uh-huh. Yes, that's correct.</p>	<p>48</p> <p>1 was measured before, but for this apparatus it was</p> <p>2 not -- well, the printer paper seemed a better</p> <p>3 choice --</p> <p>4 Q. Okay.</p> <p>5 A. -- since the substrate doesn't matter in</p> <p>6 my method.</p> <p>7 Q. So Mr. Wahi --</p> <p>8 A. It won't make any difference whether</p> <p>9 it's pigskin or printer paper.</p> <p>10 Q. Okay. But Mr. Wahi did discuss</p> <p>11 potentially using other substrates with you in</p> <p>12 your test method?</p> <p>13 A. Well, he had said that he had already</p> <p>14 done some measurements and used pigskin in some of</p> <p>15 the methods of measurements.</p> <p>16 Q. So are you saying that Mr. Wahi had</p> <p>17 already conducted his own testing using pigskin;</p> <p>18 is that right?</p> <p>19 A. Yes. Well, he mentioned that pigskin</p> <p>20 would be used as a substrate, that's what he said.</p> <p>21 Q. Did he say who was going to be testing</p> <p>22 surface charge on pigskin?</p> <p>23 A. No, he didn't say.</p> <p>24 Q. Okay. But it's your understanding that</p> <p>25 Mr. Wahi was going to do that himself?</p>

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<p>49</p> <p>1 A. No, he didn't say that he was going to 2 do that himself, just described like possible ways 3 to test the product. 4 Q. Okay. Did Mr. Wahi ask you your opinion 5 about whether pigskin would be an acceptable 6 substrate for your testing? 7 A. Yes, he asked what kind of substrate 8 would be best for my testing. 9 Q. Okay. And you recommended printer 10 paper? 11 A. Yes, because the sample needs to spin, 12 and you want it to be as light as possible. 13 Q. Okay. 14 A. And since the substrate -- there's -- 15 effect of substrate is negated by the method 16 itself. It doesn't matter whether you use pigskin 17 or printer paper. 18 Q. And can you just explain that to me 19 again, how the effect of the substrate is negated 20 by the method? 21 A. So as I explained before and as the 22 report states, the substrate -- the chemicals are 23 covering half of the substrate, and as the 24 substrate rotates, it's like half of the chemicals 25 comes under electrode, and then as it turns</p>	<p>51</p> <p>1 correct? 2 A. Yes, that's correct. 3 Q. Okay. And so each of these pieces of 4 paper, how large were they? 5 A. About a square inch. 6 Q. Okay. And where was the chemical test 7 sample applied on the piece of paper? 8 A. Yes, so there's a line across the 9 sample. So bottom half was covered with chemical, 10 and the top was bare. 11 Q. Okay. And then what are the diagonal 12 lines for? 13 A. Those only for just to cut squares. 14 Q. Okay. And did you -- it looks like you 15 wrote on these samples as well with -- or sorry, 16 it looks like you wrote on the paper which each of 17 the papers would be coated with; right? 18 A. Well, the writing was done after the 19 measurement was completed. 20 Q. Oh, okay. Was the -- but the lines -- 21 the diagonal lines and the horizontal line, that 22 was on the paper at the time of the measurement; 23 right? 24 A. Yes. 25 Q. Okay. So you used a pen to write the</p>
<p>50</p> <p>1 halfway, the substrate comes under electrodes. 2 So what electrode senses, it senses the 3 difference between the part with chemicals and 4 without the chemicals. So whatever effect 5 substrate has by its own, it's all the same as it 6 rotates, but the part that has chemicals in it, 7 that's what makes -- produces the signal. So 8 that's how the effect of the substrate is 9 eliminated. 10 Does that explain? 11 Q. So for half of the time that the 12 electrode is taking measurements, it's measuring 13 just the substrate, and then for the other half of 14 the time, it's measuring the chemicals? 15 A. Yes, that's correct, substrate plus 16 chemicals. And the difference is measured. So 17 the difference would be produced by the chemicals. 18 Q. Okay. 19 MS. PETERSON: Let's pull up 20 Dr. Ermakov's report again. And let's go -- yep, 21 right there, that's good. 22 BY MS. PETERSON: 23 Q. So this is a picture that you took, 24 Mr. -- or, Dr. Ermakov, of the four substrates 25 that you tested in the second round of testing;</p>	<p>52</p> <p>1 diagonal lines to cut the paper; right? 2 A. Uh-huh. Yes. 3 Q. And then you drew a horizontal line to 4 indicate where the sample should be applied; 5 correct? 6 A. Yes, that's correct. 7 Q. Okay. Then you applied the sample to 8 the bottom half of the paper? 9 A. Uh-huh. 10 Q. Yes? 11 A. Or it could be top half. I don't 12 remember. 13 Q. Okay. 14 A. Yeah, most likely it was the top -- 15 well, you can look at the pictures, actually -- 16 yeah, that was the top half. If you look at the 17 rightmost sample. You can see the paper is kind 18 of changes shape because the chemical was applied. 19 Q. Okay. So you applied the test samples 20 to the top half of the paper; right? 21 A. Uh-huh. Yes. 22 Q. And then you measured them? 23 A. Yes, then measured. And then the 24 samples were marked for taking the picture. 25 Q. Okay. So after you measured the</p>

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<p>53</p> <p>1 samples, then you labeled them?</p> <p>2 A. Uh-huh.</p> <p>3 Q. Yes?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. And then you took the picture?</p> <p>6 A. Yes.</p> <p>7 Q. Okay. What kind of -- so did you use a</p> <p>8 pen or a marker to mark those diagonal lines and</p> <p>9 horizontal lines on the paper?</p> <p>10 A. Diagonal lines are pencil.</p> <p>11 Q. Okay.</p> <p>12 A. Horizontal line is pen.</p> <p>13 Q. Okay. And so would it be fair to</p> <p>14 assume, then, that the surface charge that you</p> <p>15 were measuring in your experiment also picked up</p> <p>16 on whether there was a charge associated with the</p> <p>17 pencil and the pen that you used to mark the</p> <p>18 papers?</p> <p>19 A. Well, it's clear because we use a blank,</p> <p>20 as well. It has the same markings.</p> <p>21 Q. Okay.</p> <p>22 A. And there's a clear difference between</p> <p>23 blank sample and other samples.</p> <p>24 Q. Okay. But if there was a charge</p> <p>25 associated with the pen and the pencil that was</p>	<p>55</p> <p>1 -- if there is any, you just ignore it.</p> <p>2 Q. Okay.</p> <p>3 MS. PETERSON: Let's scroll down to the</p> <p>4 next page, please, where the results are listed.</p> <p>5 BY MS. PETERSON:</p> <p>6 Q. Okay. So because of the spinning, you</p> <p>7 said that for half of the time the electrode is</p> <p>8 taking measurements it's measuring just the</p> <p>9 substrate, and then for the other half of the time</p> <p>10 it's measuring the substrate plus the chemicals;</p> <p>11 correct?</p> <p>12 A. Yes, that's correct.</p> <p>13 Q. So for -- let's look at the NasalGuard</p> <p>14 Airborne Particle Blocker TTK-APB. Do you see</p> <p>15 that?</p> <p>16 A. Uh-huh.</p> <p>17 Q. Yes?</p> <p>18 A. Yes, I see that.</p> <p>19 Q. Okay. So the -- you measured the output</p> <p>20 in volts; correct?</p> <p>21 A. Yes, that's correct. Yeah.</p> <p>22 Q. Okay. So that measurement that's</p> <p>23 reported here for TTK-APB, is that the total</p> <p>24 voltage that was measured over the course of the</p> <p>25 entire time the substrate was spinning or just for</p>
<p>54</p> <p>1 used to mark the pauper, that charge, whatever it</p> <p>2 contributed, would be measured in addition to the</p> <p>3 substrate and the test samples; correct?</p> <p>4 A. It would not be measured for the reason</p> <p>5 that it's -- it has different shape. You need</p> <p>6 half of the sample to get measurement. And if</p> <p>7 that -- and you see the mark, it goes kind of all</p> <p>8 the way across. So that would create different</p> <p>9 signal -- each timing of that signal would be</p> <p>10 different.</p> <p>11 Well, there are many reasons why those</p> <p>12 markings don't contribute to the measurement --</p> <p>13 well, to the degree of considered [inaudible]</p> <p>14 result. And as confirmation of that is just the</p> <p>15 measurement of the blank sample.</p> <p>16 Q. Yeah, I understand the markings are on</p> <p>17 the blank sample, as well. But I'm just trying to</p> <p>18 understand as a matter of basic principle if the</p> <p>19 marker and the pen --</p> <p>20 A. Well, the pen -- like as the sample</p> <p>21 rotates, you can see that the pen -- the line</p> <p>22 that's made with the pencil or the pen that will</p> <p>23 come under the electrode, it's like twice or four</p> <p>24 times the frequency. And we measure the frequency</p> <p>25 of the rotation of the sample. So that signal was</p>	<p>56</p> <p>1 that -- those half periods of times where it was</p> <p>2 recording the substrate plus the chemicals?</p> <p>3 A. Yeah, that's the difference measured for</p> <p>4 half the time. An oscilloscope was used to do the</p> <p>5 measurement, and it was set to measure peak to</p> <p>6 peak. So you get -- because the sample is</p> <p>7 spinning, you get time varying signal, the</p> <p>8 difference of that sample rotation.</p> <p>9 And most accurate measurement to</p> <p>10 calculate the charge would be peak -- to measure</p> <p>11 peak, like maximum to minimum of that oscillating</p> <p>12 voltage. So that's what it was. So it's a</p> <p>13 difference of the voltage run the sample bears</p> <p>14 that substrate is under electrode minus the</p> <p>15 voltage that's the chemical on the substrate under</p> <p>16 electrode.</p> <p>17 Q. Okay. And then for the blank uncoated</p> <p>18 substrate, what did you use? Because there</p> <p>19 wouldn't have been any peaks; right?</p> <p>20 A. Well, it still produced some peaks</p> <p>21 because of variation in the substrate.</p> <p>22 Q. Okay. And then how was this -- the</p> <p>23 oscilloscope that you used, what kind of data was</p> <p>24 outputted from this? Is it recorded somewhere in</p> <p>25 a file?</p>

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<p>57</p> <p>1 A. Well, no, it was just a readout on a 2 screen that was recorded. But that's the number 3 that you see there. 4 Q. So there was a screen with a readout, 5 and you would just handwrite the values that you 6 were seeing? 7 A. Yes. That's how it was done, yeah. 8 Q. Okay. And how many times did you spin 9 it, each sample? 10 A. Well, that was spun for, like, a minute 11 or two just to see how stable the readings are, 12 whether they're changing or not changing. 13 Q. And so how many individual measurements 14 did you hand record for each sample? 15 A. It was one measurement for each sample. 16 So as the sample spins, the oscilloscope will get 17 kind of averaged different -- 18 Q. Okay. But how did you obtain the 19 average? Wouldn't you have to record each output 20 in order to determine the average? 21 A. No, it was -- the oscilloscope just does 22 this measurement. That's how it was done. 23 Q. So there's just one reading that comes 24 out of the oscilloscope at the end of the 25 proceeding?</p>	<p>59</p> <p>1 (Ermakov Deposition Exhibit 28 was 2 marked for identification and attached to the 3 transcript.) 4 THE REMOTE TECHNICIAN: Stand by. 5 MR. KREMEN: It's 28, Liane? 6 MS. PETERSON: Yep. 7 MR. KREMEN: Thank you. 8 BY MS. PETERSON: 9 Q. Okay. We've marked as Exhibit 28 a copy 10 of the deposition notice for Dr. Ermakov. 11 Dr. Ermakov, have you seen this before? 12 A. No. 13 Q. Well, do you understand that you are 14 appearing today to provide your deposition for a 15 litigation and that you're appearing subject to 16 this deposition notice? 17 A. Yes, I do. 18 Q. Okay. 19 MS. PETERSON: We can take that down. 20 BY MS. PETERSON: 21 Q. Dr. Ermakov, what did you do to prepare 22 for your deposition today? 23 A. Well, I looked through other report 24 about the measurement of charge using Faraday cup. 25 That's about it.</p>
<p>58</p> <p>1 A. Yes. That's right, yeah. 2 Q. Okay. And how did you determine the 3 approximate uncertainty of plus or minus .10? 4 A. Well, that's just some estimate that was 5 applied like from how accurate the oscilloscope 6 measured the voltage. So that's the accuracy, 7 basically. So the accuracy shows -- yeah. 8 Q. How do you know that .10 is the range of 9 accuracy for the oscilloscope? 10 A. Well, that's from specification of 11 oscilloscope. That's how accurate its internal 12 workings. 13 Q. So the product documentation for the 14 oscilloscope indicated that it provides voltage 15 readings with an accuracy of plus or minus .10 -- 16 A. Yes. 17 Q. -- volts? 18 A. Uh-huh. 19 Q. Okay. 20 MS. PETERSON: We could take that down. 21 I'll have some other questions about this that 22 we'll come to a little bit later, but we can take 23 it down for now. 24 Can we mark as Exhibit 28 a copy of the 25 deposition notice of Dr. Ermakov, please.</p>	<p>60</p> <p>1 Q. You mean you looked through your two 2 reports? 3 A. Yeah, I refreshed my memory about my 4 reports. And I had a copy of other expert report 5 that I looked through. 6 Q. Okay. And then the other expert reports 7 that you looked through, did that include 8 Mr. Burns' report? 9 A. Yes. 10 Q. Did you review any other documents to 11 prepare for your deposition? 12 A. I saw the report of the opposing expert. 13 Q. Oh, Dr. Amiji? 14 A. Uh-huh. 15 Q. Yes? 16 A. Yes. 17 Q. Okay. Did you look at the report -- any 18 of the reports prepared by Dr. Lemmo? 19 A. I don't think so, no. 20 Q. Okay. How much time did you spend 21 reviewing those materials to prepare for your 22 deposition? 23 A. About a couple of hours. 24 Q. And can you think of any other documents 25 or information that you reviewed to prepare for</p>

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Transcript of Alexei Ermakov, Ph.D.

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<p>1 today?</p> <p>2 A. No, I don't think so.</p> <p>3 Q. Okay. And did you have any meetings or</p> <p>4 phone calls or video conferences to prepare for</p> <p>5 today's deposition?</p> <p>6 A. I had one meeting with attorneys,</p> <p>7 Stanley Kremen.</p> <p>8 Q. Okay. When was that meeting with</p> <p>9 Mr. Kremen?</p> <p>10 A. I don't remember exact date. A few</p> <p>11 weeks ago.</p> <p>12 Q. Okay. Was there anybody else at that</p> <p>13 meeting besides you and Mr. Kremen?</p> <p>14 A. Yeah, there was Ashok and another</p> <p>15 person. What's his name? Lemmo.</p> <p>16 Q. Dr. Lemmo was at that meeting?</p> <p>17 A. Yeah, I think so.</p> <p>18 Q. Okay. And how long did that meeting</p> <p>19 last with Mr. Kremen and Mr. Wahi and Dr. Lemmo?</p> <p>20 A. It was a couple of hours.</p> <p>21 Q. And to the best that you remember, it</p> <p>22 was sometime in the last couple of weeks?</p> <p>23 A. Yeah, I think so. Or maybe a month ago.</p> <p>24 Q. Okay. Did you meet with or prepare with</p> <p>25 anyone else for the deposition other than those</p>	<p>61</p> <p>63</p> <p>1 A. Well, I don't remember exactly.</p> <p>2 Q. That's fine.</p> <p>3 When was the most recent conversation</p> <p>4 that you had with Mr. Wahi leading up to your</p> <p>5 deposition?</p> <p>6 A. That's the same, about the same thing.</p> <p>7 Q. Okay. Did Mr. Kremen or Mr. Wahi tell</p> <p>8 you anything about depositions that had already</p> <p>9 taken place?</p> <p>10 A. Not really. Well, they said that there</p> <p>11 was some depositions.</p> <p>12 Q. Okay. But they didn't talk to you about</p> <p>13 the -- about what was discussed at those</p> <p>14 depositions?</p> <p>15 A. No.</p> <p>16 Q. Okay. Dr. Ermakov, have you reviewed</p> <p>17 the deposition transcripts of any depositions that</p> <p>18 have already occurred in this case?</p> <p>19 A. No, I did not.</p> <p>20 Q. Dr. Ermakov, what is your current</p> <p>21 occupation?</p> <p>22 A. I'm a director of chemical</p> <p>23 instrumentation at the Department of Chemistry,</p> <p>24 Rutgers University.</p> <p>25 Q. So that was director of chemical</p>
<p>62</p> <p>1 three individuals?</p> <p>2 A. No.</p> <p>3 Q. Okay. Did you have any phone</p> <p>4 conversations or meetings this week about your</p> <p>5 deposition?</p> <p>6 A. No, I didn't have any.</p> <p>7 Q. So after your meeting with Mr. Kremen</p> <p>8 sometime a few weeks ago or a month ago, you</p> <p>9 haven't had any further phone calls or meetings</p> <p>10 with Mr. Kremen?</p> <p>11 A. Well, maybe there was one or two just to</p> <p>12 confirm when to be at the deposition.</p> <p>13 Q. Okay. And did you have any other</p> <p>14 meetings or phone calls with Mr. Wahi leading up</p> <p>15 to deposition?</p> <p>16 A. Yeah, it was the same, a brief</p> <p>17 conversation that we're going to do the deposition</p> <p>18 over Zoom, and that's it.</p> <p>19 Q. Okay. When was the most recent</p> <p>20 conversation that you had with Mr. Kremen?</p> <p>21 A. A few days ago, maybe. Just when this</p> <p>22 deposition was coming up.</p> <p>23 Q. And --</p> <p>24 A. And information about Zoom.</p> <p>25 Q. Was it on Monday or Tuesday this week?</p>	<p>64</p> <p>1 instrumentation in the Department of Chemistry at</p> <p>2 Rutgers University; is that right?</p> <p>3 A. Uh-huh. Yes, that's right.</p> <p>4 Q. Okay. And how long have you held that</p> <p>5 position?</p> <p>6 A. About 20 years.</p> <p>7 Q. Dr. Ermakov, what would you consider to</p> <p>8 be your field of expertise?</p> <p>9 A. My field of expertise is instrumentation</p> <p>10 that's used to conduct experiments and do the</p> <p>11 measurements of all sorts of kinds. So this</p> <p>12 charge measurement, that's kind of my direct</p> <p>13 expertise.</p> <p>14 Q. Okay. So you said your field of</p> <p>15 expertise is instrumentation to conduct</p> <p>16 experiments, but is that expertise, is it focused</p> <p>17 on one particular scientific or technical area?</p> <p>18 A. No, it's kind of all sorts of different</p> <p>19 instruments.</p> <p>20 Q. Okay. So you would consider your</p> <p>21 expertise to be general in the sense that it's</p> <p>22 focused on instrumentation of any type of nature</p> <p>23 for any technical --</p> <p>24 A. Uh-huh.</p> <p>25 Q. -- for any technical issue; is that</p>

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17 (65 to 68)

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<p>65</p> <p>1 correct?</p> <p>2 A. Yes, that's correct.</p> <p>3 Q. Okay.</p> <p>4 MS. PETERSON: Let's mark as Exhibit 29</p> <p>5 a copy of Dr. Ermakov's CV, please.</p> <p>6 (Ermakov Deposition Exhibit 29 was</p> <p>7 marked for identification and attached to the</p> <p>8 transcript.)</p> <p>9 BY MS. PETERSON:</p> <p>10 Q. Dr. Ermakov, do you recognize Exhibit 29</p> <p>11 as your CV?</p> <p>12 A. Yes, I do.</p> <p>13 Q. Okay. Do you have any changes to make</p> <p>14 to this, or is it current?</p> <p>15 A. It's current.</p> <p>16 Q. Okay. And looking at your education, it</p> <p>17 looks like you received a Ph.D. in physics in</p> <p>18 1992; is that correct?</p> <p>19 A. Yes, that's correct.</p> <p>20 Q. Okay. And as director of instruments in</p> <p>21 the chemistry department at Rutgers, what are your</p> <p>22 typical job responsibilities?</p> <p>23 A. Responsibilities, just solve any</p> <p>24 problems if they occur, instrumentation. Think of</p> <p>25 sometimes design, some experiments, or I come up</p>	<p>67</p> <p>1 do some work on them for maintenance, but an</p> <p>2 entirely new instrument, that's obviously not too</p> <p>3 often occasion to do that.</p> <p>4 Q. Okay. Do your job responsibilities at</p> <p>5 Rutgers ever involve providing consulting work to</p> <p>6 companies outside of Rutgers?</p> <p>7 A. No.</p> <p>8 Q. Have you ever provided consulting work</p> <p>9 or testing services to an outside company before</p> <p>10 your work for Trutek?</p> <p>11 A. No, never.</p> <p>12 Q. Okay. Looking at the next section, you</p> <p>13 indicate for a research area, the development of</p> <p>14 new techniques and instrumentation for research in</p> <p>15 surface science, chemistry, and nanotechnology.</p> <p>16 Do you see that?</p> <p>17 A. Uh-huh. Yes.</p> <p>18 Q. What percent of your work at Rutgers is</p> <p>19 devoted to developing new techniques and</p> <p>20 instrumentation as part of your overall job</p> <p>21 responsibilities?</p> <p>22 A. Well, that's -- perhaps a total</p> <p>23 percentage -- oh, maybe 30 percent. I don't know.</p> <p>24 Twenty percent.</p> <p>25 Q. Okay. And has any of your research into</p>
<p>66</p> <p>1 with design of new instruments if it's required</p> <p>2 sometimes. So that's what I do. Just make sure</p> <p>3 and oversee operation of different kinds of</p> <p>4 instrumentation that's used in the chemistry</p> <p>5 department.</p> <p>6 Q. Okay. So like if somebody else in the</p> <p>7 chemistry department has a problem with some of</p> <p>8 the instrumentation, then it's your job to help</p> <p>9 solve that problem and fix it?</p> <p>10 A. Yeah, exactly. Say it could be a</p> <p>11 problem with the instrument or with the use of the</p> <p>12 instrument or setup of the experiment itself</p> <p>13 that's done. So it might not produce.</p> <p>14 Q. Okay. And how often does -- or how</p> <p>15 frequently does someone in the chemistry</p> <p>16 department ask you to design a new instrument?</p> <p>17 MR. KREMEN: Form.</p> <p>18 You may answer.</p> <p>19 THE WITNESS: Okay. Well, let's say,</p> <p>20 like, maybe once a year or something like that.</p> <p>21 BY MS. PETERSON:</p> <p>22 Q. Okay.</p> <p>23 A. It's not, like, somebody give -- some</p> <p>24 instruments that were built in our department,</p> <p>25 they require continuous attention. Like I might</p>	<p>68</p> <p>1 techniques and instrumentation involved the</p> <p>2 measurement of electrostatic surface charge?</p> <p>3 A. No, it was unique in the requirement to</p> <p>4 make this apparatus.</p> <p>5 Q. Okay. So what Trutek asked you to do,</p> <p>6 that was unique to that testing.</p> <p>7 A. Yeah, it was different from, like,</p> <p>8 anything else I have done.</p> <p>9 Q. Okay. Has any of your research at</p> <p>10 Rutgers ever focused on techniques or</p> <p>11 instrumentation for measuring electrostatic</p> <p>12 surface charge of pharmaceutical formulations?</p> <p>13 A. No.</p> <p>14 Q. What about for measuring electrostatic</p> <p>15 surface charge of water-in-oil nanoemulsions?</p> <p>16 A. No, I haven't done research like that.</p> <p>17 Q. And what about has any of your research</p> <p>18 ever focused on techniques or instrumentation for</p> <p>19 measuring electrostatic surface charge of</p> <p>20 pharmaceutical products that are intended to be</p> <p>21 applied to human skin?</p> <p>22 A. No.</p> <p>23 Q. And has any of your research at Rutgers</p> <p>24 ever focused on techniques or instrumentation to</p> <p>25 measure the electrostatic surface charge of</p>

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18 (69 to 72)

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<p>1 pharmaceutical products that function through 2 electrostatic forces? 3 A. No. 4 Q. Okay. 5 MS. PETERSON: Let's go to the next 6 page. 7 BY MS. PETERSON: 8 Q. Here, I see you have an overview of some 9 of your research experience over the past -- I 10 guess going all the way from 1984 up through the 11 present; correct? 12 A. Yes, that's correct. 13 Q. Okay. Is this a complete list -- or a 14 complete description? 15 A. Well, that's a major points, although 16 there's some things kind of might be missing -- 17 something might be missing, but it's mostly 18 complete, I would say. 19 Q. Okay. And then if we go to page 3 of 20 your CV, the final page, I see you have a list 21 here of your top ten major publications; right? 22 A. Uh-huh. 23 Q. Yes? 24 A. Yes. 25 Q. Okay. And have you had any other</p>	<p>69 71 1 for that experiment. 2 Q. Okay. So your experience in testing 3 products for surface charge is limited to the work 4 that you did for Trutek; is that correct? 5 A. Yes, that's correct. 6 Q. So there's no other instances that you 7 can recall where you tested the electrostatic 8 surface charge in any experiment? 9 A. Well, later on I tested something else 10 for electrostatic charge, some filters. It's not 11 a product that you put on something, it's just 12 some material that has electrostatic charge. 13 Q. Okay. So after your work for Trutek, 14 you did test electrostatic charge on a filter 15 product? 16 A. Uh-huh. 17 Q. Is that a "yes"? 18 A. Yes, filter products -- well, I cannot 19 go in too much detail because it's another kind of 20 company that requested. 21 Q. Okay. So -- 22 A. Something so serious. There was also 23 some product applied to material that is going to 24 be used as a filter. It's like a mask or 25 something.</p>
<p>70 1 publications that were published in the past 2 ten years that are not on this list? 3 A. Yes, I have a number of publications. 4 Q. So there are a number of other 5 publications from the past ten years that are not 6 listed on your CV? 7 A. Yes, the ones that are listed are the 8 most referenced. That's how they were selected as 9 the major publications. 10 Q. Oh, so you selected these based on the 11 ones that have been cited the most by other 12 people? 13 A. Exactly, yes. 14 Q. Okay. 15 MS. PETERSON: We can take that exhibit 16 down. 17 BY MS. PETERSON: 18 Q. Dr. Ermakov, do you have any experience 19 in testing nasal antiseptic products for use in 20 humans? 21 A. Well, could you clarify what kind of 22 testing? 23 Q. I guess do you have any experience in 24 testing them for surface charge? 25 A. Well, that's what I did for Dr. Wahi was</p>	<p>72 1 Q. Okay. So sometime after your work for 2 Trutek, you were contacted by another company to 3 test electrostatic charge on a filter product; is 4 that correct? 5 A. That's correct, yeah. 6 Q. Okay. And that company was not Trutek? 7 A. No, it was not Trutek. 8 Q. And was Mr. Wahi involved in that 9 testing? 10 A. No, it was completely independent. 11 Q. Okay. So other than the work for Trutek 12 and then the subsequent work for this other 13 company, there are no other instances that you can 14 recall where you tested or measured the 15 electrostatic surface charge of a product? 16 A. No. 17 Q. Okay. Now, would you expect a chemical 18 that's applied to human skin, would you expect it 19 to exhibit the same surface electrostatic charge 20 as when it's applied on paper? 21 A. Yes, that's the property of the 22 chemical. 23 Q. Okay. Does the temperature or the 24 humidity of the environments impact the 25 electrostatic charge exhibited by an object?</p>

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<p>73</p> <p>1 A. No, it does not because it's a property 2 of the molecules. They have a certain charge, 3 permanent charge. The environment doesn't matter 4 here.</p> <p>5 Q. Okay. Going back to the apparatus and 6 test method that you designed for your experiments 7 for Trutek, how did you test the technique to 8 determine it would be accurate?</p> <p>9 A. Well, I can do a simple test to see what 10 kind of signal they're getting with or without 11 sample rotation, for example. When the sample is 12 not rotating, then there's virtually zero.</p> <p>13 Q. Did you do that here?</p> <p>14 A. Yes. So when the sample is rotating, 15 then we observe the signal and the accuracy that 16 the apparatus is based on the simple basic 17 principles of electrostatic and electricity. So 18 there's no need for much testing. You can just 19 calculate what's the result, what's the charge, 20 actual charge once you measure the voltage and 21 measure all the parameters that's involved, like 22 capacitance and size of the electrode.</p> <p>23 Q. Did you run a test without the rotation 24 to see what kind of signal you got?</p> <p>25 A. Yes. Yes, that's one first basic test</p>	<p>75</p> <p>1 A. So I came up with this thing, and it 2 seemed to be simple -- quite simple apparatus that 3 I could put together in, like, less than an hour.</p> <p>4 Q. Okay. So you weren't aware of any 5 existing equipment or apparatus that you could use 6 that would fit to the problem that you were asked 7 to address; is that right?</p> <p>8 A. No, I was aware. I designed this 9 apparatus because it can provide much greater 10 accuracy and sensitivity.</p> <p>11 Q. Okay. Are you aware of whether this 12 test method that you used and the apparatus that 13 you built, are you aware of whether that's ever 14 been published by anybody else in the field?</p> <p>15 A. No. I never saw any publications 16 similar to this.</p> <p>17 Q. Okay. And are you aware of whether your 18 test method and apparatus have ever been used by 19 anyone else before in your field?</p> <p>20 A. No, I am not aware.</p> <p>21 Q. Okay. And has the test method and 22 apparatus that you used for your testing ever been 23 reviewed by any of your colleagues or peers?</p> <p>24 A. No, it was not reviewed by anyone.</p> <p>25 Q. Do you know if the test method and</p>
<p>74</p> <p>1 that's done.</p> <p>2 Q. Okay. And that's not documented in your 3 report; correct?</p> <p>4 A. No, it was kind of -- kind of simple 5 thing that I didn't think I needed to mention it.</p> <p>6 Q. Did you ask anybody else to take a look 7 at your apparatus and test method --</p> <p>8 A. No.</p> <p>9 Q. -- to determine that it would accurately 10 perform as intended?</p> <p>11 A. No, there was no need to ask anyone else 12 because I am confident in the accuracy of the 13 apparatus just from the basic principles of how it 14 operates. Because it's so simple it doesn't 15 require any additional expertise to figure out the 16 accuracy of the apparatus.</p> <p>17 Q. So why did you have to design and build 18 this apparatus yourself then? How come it's never 19 been used before?</p> <p>20 A. Well, I was just -- because usual 21 thinking what's the best way to solve this 22 problem. So I was presented with the problem to 23 measure surface charge, and I was thinking what's 24 the most sensitive and robust way to measure.</p> <p>25 Q. Okay.</p>	<p>76</p> <p>1 apparatus you used has a known rate of error?</p> <p>2 A. Well, what kind of -- well, can you 3 clarify what kind of error you're talking about?</p> <p>4 Q. Yeah, I mean, just error in the 5 measurements that are recorded?</p> <p>6 A. You mean as far as accuracy?</p> <p>7 Q. Yeah.</p> <p>8 A. Well, it's -- the accuracy of the 9 apparatus is -- of the measurement is determined 10 by how accurate we can measure in all parts of 11 apparatus, such as surface area of the electrode 12 and other parameters, like capacitance, how 13 accurately it can measure the voltage. But that's 14 the sort of things.</p> <p>15 And all these errors that were 16 introduced by accuracy of those measurements, 17 they're orders of magnitude smaller than kind of 18 desired accuracy of the measurement of the surface 19 charge because --</p> <p>20 Q. How do you know that all of the errors 21 that are introduced by accuracy of the 22 measurements will be of an order of magnitude 23 smaller?</p> <p>24 A. Well, the problem was to measure -- the 25 problem as was stated to me was to measure the</p>

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<p>77</p> <p>1 charge and the order of magnitude. And all the</p> <p>2 parameters we can measure the accuracy of percent</p> <p>3 of something. So, obviously, you can achieve this</p> <p>4 accuracy of -- order of magnitude quite easily</p> <p>5 without any problems.</p> <p>6 Q. Okay. So when you say all of the</p> <p>7 parameters you can measure the accuracy of, are</p> <p>8 you talking about all of the parameters that went</p> <p>9 into the formula that you used to calculate</p> <p>10 charge?</p> <p>11 A. Yes, that's what I'm talking about.</p> <p>12 Q. Okay. And so what is that error rate</p> <p>13 for measuring the voltage in your test method?</p> <p>14 A. So that one is actually kind of -- in</p> <p>15 the report it's .101.</p> <p>16 Q. Okay. And then what about the</p> <p>17 capacitance, what's the error rate for the</p> <p>18 capacitance measurements that --</p> <p>19 A. The capacitance, yes, it was measured</p> <p>20 using instrument design to measure capacitance.</p> <p>21 And the accuracy of that instrument is about a few</p> <p>22 percent. 1 or 2 percent, that's how it's rated.</p> <p>23 Q. So that's based on the instrumentation</p> <p>24 itself?</p> <p>25 A. Yeah, that's right.</p>	<p>79</p> <p>1 MS. PETERSON: Yep, Exhibit 27. Thank</p> <p>2 you, Stan.</p> <p>3 BY MS. PETERSON:</p> <p>4 Q. Dr. Ermakov, did you review any other</p> <p>5 materials or any other information when conducting</p> <p>6 the testing that's described in this report?</p> <p>7 A. What kind of information are you talking</p> <p>8 about?</p> <p>9 Q. I'm just wondering if you received any</p> <p>10 information about the test samples?</p> <p>11 A. No, it was just some chemicals. That's</p> <p>12 all.</p> <p>13 Q. Did you review any scientific literature</p> <p>14 or any other publications related to measurements</p> <p>15 for electrostatic surface charge?</p> <p>16 A. No, I did not.</p> <p>17 Q. Did you review any textbooks?</p> <p>18 A. Well, no. There's no need for me to</p> <p>19 review any textbooks, because I had all the</p> <p>20 information I needed, I already was aware of.</p> <p>21 Q. Okay. So, generally, that's what I'm</p> <p>22 asking. Did you have to review or do any research</p> <p>23 on any areas in order to come up with the test</p> <p>24 method that you used?</p> <p>25 A. Okay. Well, there was no need to do any</p>
<p>78</p> <p>1 Q. Okay. And then the area, how was the</p> <p>2 area measured?</p> <p>3 A. Well, it was measured using a ruler.</p> <p>4 That's the accuracy of the ruler.</p> <p>5 Q. Okay. So you measured that using a</p> <p>6 ruler?</p> <p>7 A. Uh-huh.</p> <p>8 Q. Okay. What about the accuracy of the</p> <p>9 spinner, was there any kind of error rate that we</p> <p>10 can look to there to assess the accuracy of --</p> <p>11 A. No, as long as it spins fast enough.</p> <p>12 Q. How fast does it spin?</p> <p>13 A. Well, it spins 100 revolutions per</p> <p>14 second.</p> <p>15 Q. And how was that measured?</p> <p>16 A. Well, the oscilloscope provides that</p> <p>17 measurement, the signal providing that frequency.</p> <p>18 Q. Okay.</p> <p>19 A. And that's not critical. It could spin</p> <p>20 twice as fast or half as fast and get the same</p> <p>21 measurement. So the spinner is not a critical</p> <p>22 part at all.</p> <p>23 Q. Okay. Let's go back to your report now.</p> <p>24 MS. PETERSON: This is Exhibit --</p> <p>25 MR. KREMEN: 27.</p>	<p>80</p> <p>1 research or review.</p> <p>2 Q. Okay. Now, the report is dated</p> <p>3 January 11th, 2021; correct?</p> <p>4 A. Uh-huh.</p> <p>5 Q. Yes?</p> <p>6 A. Yes.</p> <p>7 Q. Okay. When did you conduct the test?</p> <p>8 A. It was shortly before that.</p> <p>9 Q. So sometime in the, like, week before</p> <p>10 that?</p> <p>11 A. Yeah, something like that. Yeah.</p> <p>12 Q. Okay. How long did it take to complete</p> <p>13 the test? Was it completed in one day?</p> <p>14 A. Yes, it was completed in one day.</p> <p>15 Q. And did you -- was there anybody else</p> <p>16 present with you in your office when you conducted</p> <p>17 the test?</p> <p>18 A. I don't really remember.</p> <p>19 Q. You don't remember if you were by</p> <p>20 yourself or if there was somebody else with you</p> <p>21 when you conducted the test?</p> <p>22 A. There was someone else, maybe.</p> <p>23 Q. Who was it?</p> <p>24 A. The person who brought the samples.</p> <p>25 Q. Okay. Who brought the samples?</p>

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<p>81</p> <p>1 A. Well, I don't remember that exactly.</p> <p>2 Q. Did you keep any records or any notes as</p> <p>3 you conducted the test in 2021?</p> <p>4 A. I had some notes as I took the</p> <p>5 measurements, and then I used them to create the</p> <p>6 report.</p> <p>7 Q. And what did you do with those notes as</p> <p>8 you took the measurements -- what did you do with</p> <p>9 those notes after you created the report?</p> <p>10 A. Well, I think that you just threw them</p> <p>11 away.</p> <p>12 Q. Okay. Did those notes that you took,</p> <p>13 indicate what samples you had received?</p> <p>14 A. No, it was just whatever was labeled.</p> <p>15 Q. I know, but did you write down on your</p> <p>16 notes what those labels were?</p> <p>17 A. Well, it was, like, sample 1, sample 2.</p> <p>18 Q. Okay. Did you write down in your notes</p> <p>19 who it was that provided you with the samples in</p> <p>20 January 2021?</p> <p>21 A. No, I didn't write that down.</p> <p>22 Q. Okay. Do you know if it was somebody</p> <p>23 from Trutek who came to your office to give you</p> <p>24 the samples?</p> <p>25 A. Yes, I think so.</p>	<p>83</p> <p>1 this -- you set up the apparatus that's shown here</p> <p>2 in Figure 1 yourself; right?</p> <p>3 A. Yes.</p> <p>4 Q. Okay.</p> <p>5 MS. PETERSON: And then let's go to the</p> <p>6 next page.</p> <p>7 BY MS. PETERSON:</p> <p>8 Q. The second paragraph talks about how the</p> <p>9 printer paper was prepared and how the test</p> <p>10 product was coated on the paper. Do you see that?</p> <p>11 A. Uh-huh.</p> <p>12 Q. Did you prepare the printer paper</p> <p>13 yourself personally?</p> <p>14 A. Yes, I did. I cut the paper and put</p> <p>15 some reasonable amount of chemicals on it.</p> <p>16 Q. Okay. So you personally applied the</p> <p>17 test samples to each of the paper substrates;</p> <p>18 correct?</p> <p>19 A. Yes, that's correct.</p> <p>20 Q. How did you determine what would be a</p> <p>21 reasonable amount to apply to each paper</p> <p>22 substrate?</p> <p>23 A. Well, I applied it until I got some</p> <p>24 uniform coating on the substrate.</p> <p>25 Q. How did you apply it?</p>
<p>82</p> <p>1 Q. Was it Mr. Wahi?</p> <p>2 A. That, I don't remember. It could be him</p> <p>3 or someone else.</p> <p>4 Q. But you're fairly certain that it was</p> <p>5 somebody from Trutek who came to your office in</p> <p>6 January 2021, gave you the samples, and was</p> <p>7 present during the testing; is that correct?</p> <p>8 A. Yes. Yes.</p> <p>9 MR. KREMEN: Objection.</p> <p>10 BY MS. PETERSON:</p> <p>11 Q. Okay. Did you run the entire experiment</p> <p>12 by yourself personally, or did the person from</p> <p>13 Trutek participate in any way?</p> <p>14 A. No, I run experiments -- all the</p> <p>15 experiments myself personally. And the other</p> <p>16 person's job was just to bring the samples, and</p> <p>17 that's it.</p> <p>18 Q. Okay. So looking at the first page of</p> <p>19 your report, at the bottom.</p> <p>20 MS. PETERSON: If we could scroll up in</p> <p>21 the report, please. Thanks.</p> <p>22 Can we scroll up to the first page,</p> <p>23 please, the bottom of it, to the picture. Yeah.</p> <p>24 BY MS. PETERSON:</p> <p>25 Q. Okay. So, Dr. Ermakov, you created</p>	<p>84</p> <p>1 A. I think I used a swab to apply.</p> <p>2 Q. You think you used a swab to apply it,</p> <p>3 but you're not sure?</p> <p>4 A. Well, the chemicals, liquid or gel, I</p> <p>5 used a swab. And I think the other one was kind</p> <p>6 of spray. So just sprayed it.</p> <p>7 Q. Okay. For the spray, how did you ensure</p> <p>8 that you uniformly coated just the top half of the</p> <p>9 substrate?</p> <p>10 A. The other half was shielded with another</p> <p>11 piece of paper.</p> <p>12 Q. Oh, so you covered up the other half of</p> <p>13 the piece of paper --</p> <p>14 A. Yeah, it was covered, and half of it was</p> <p>15 coated.</p> <p>16 Q. Okay. So for the spray product, you</p> <p>17 sprayed it directly onto the paper. And then for</p> <p>18 the gel and the solution, you applied those by a</p> <p>19 swab?</p> <p>20 A. Yes, that's correct.</p> <p>21 Q. Did you use your own swab, or was it a</p> <p>22 swab that was included with the packaging?</p> <p>23 A. I used my own swabs.</p> <p>24 Q. Okay. And just to confirm, you do not</p> <p>25 have any pictures of the containers that the</p>

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<p>85</p> <p>1 samples were provided to you in?</p> <p>2 A. No, I don't have any pictures.</p> <p>3 Q. Can you estimate at all how much of each</p> <p>4 product was applied to the test substrates?</p> <p>5 A. Not really. It was applied until</p> <p>6 about -- usually it was about the same, same</p> <p>7 amount. But just that the purpose of this</p> <p>8 measurement was to determine order of magnitude</p> <p>9 charge. So I didn't bother with really accurate</p> <p>10 measurements of how much sample was applied.</p> <p>11 Q. Okay. So you don't know how much was</p> <p>12 applied of each product to the paper substrate?</p> <p>13 A. No, it was about the same amount, but</p> <p>14 definitely within an order of magnitude about --</p> <p>15 well, I can say same, within order of magnitude.</p> <p>16 If you had ten times more of one product over</p> <p>17 another one, I think that would be quite obvious.</p> <p>18 That was not the case, though.</p> <p>19 Q. If you didn't measure how much was</p> <p>20 applied, how can you say that you applied the same</p> <p>21 amounts within the same order of magnitude?</p> <p>22 A. Just from visual measurement.</p> <p>23 Q. Okay. After you applied the test</p> <p>24 substances to the paper substrate, did the -- were</p> <p>25 they absorbed into the paper?</p>	<p>87</p> <p>1 of your report?</p> <p>2 A. No, that's the report that I wrote.</p> <p>3 Q. So the report that we're looking here</p> <p>4 at -- marked as Exhibit 27, that's -- it's</p> <p>5 identical to the final report that you provided to</p> <p>6 Mr. Wahi?</p> <p>7 A. Yeah, except maybe I didn't have the</p> <p>8 names of the product. That was added later.</p> <p>9 Q. You're talking about the Items 2, 3, and</p> <p>10 4 on page 2 of your report?</p> <p>11 A. Right. But that's the only difference,</p> <p>12 yeah.</p> <p>13 Q. So what did you have in the earlier</p> <p>14 version of the report, just sample 1, sample 2,</p> <p>15 sample 3?</p> <p>16 A. Yeah, that's right.</p> <p>17 Q. Okay. And how did you know which sample</p> <p>18 was for which product?</p> <p>19 A. Because they are in that specific order,</p> <p>20 1, 2, 3.</p> <p>21 Q. Yeah, but how do you -- if you didn't</p> <p>22 know what you were testing, how did you know what</p> <p>23 order you were testing them in?</p> <p>24 A. Oh, they might have the letters</p> <p>25 abbreviation that mainly mean nothing to me.</p>
<p>86</p> <p>1 A. Yes. Some of it was absorbed into the</p> <p>2 paper, yes.</p> <p>3 Q. Okay. And what did you do to ensure</p> <p>4 that none of the test material was absorbed into</p> <p>5 the other half of the paper substrate?</p> <p>6 A. Well, with the swab, that's easy. Just</p> <p>7 apply it to one half. It doesn't --</p> <p>8 Q. Yeah --</p> <p>9 A. Well, it doesn't soak much into the</p> <p>10 paper. So there was no problem, and you can --</p> <p>11 well, if anything like that would happen, that</p> <p>12 would only reduce the observed signals.</p> <p>13 Q. Okay. When -- did the person from</p> <p>14 Trutek who was in your office at the time of the</p> <p>15 testing, did that person help you at all or --</p> <p>16 A. No.</p> <p>17 Q. -- participate at all in preparing the</p> <p>18 substrates and coating the material on the</p> <p>19 substrate?</p> <p>20 A. No, they did not.</p> <p>21 Q. Okay. So this report that's dated</p> <p>22 January 11th, did anybody else review it before</p> <p>23 you finalized it?</p> <p>24 A. No, I don't think so.</p> <p>25 Q. Are there any other drafts or versions</p>	<p>88</p> <p>1 Q. Oh, so the first draft of your report</p> <p>2 had the letter abbreviations, but maybe not the</p> <p>3 full product name?</p> <p>4 A. That's right, yeah.</p> <p>5 Q. Okay.</p> <p>6 MS. PETERSON: How about we go off the</p> <p>7 record and take a break right now.</p> <p>8 MR. KREMEN: Can we go for lunch?</p> <p>9 MS. PETERSON: Yeah, let's go off the</p> <p>10 record first.</p> <p>11 THE VIDEOGRAPHER: We're going off the</p> <p>12 record. The time is now 12:25 p.m.</p> <p>13 (Recess from the record.)</p> <p>14 THE VIDEOGRAPHER: We're back on the</p> <p>15 record. The time is now 1:17 p.m.</p> <p>16 BY MS. PETERSON:</p> <p>17 Q. Welcome back, Dr. Ermakov. I would like</p> <p>18 to go back to your report that you prepared</p> <p>19 directed to your second round of testing. So this</p> <p>20 is Exhibit 27.</p> <p>21 MS. PETERSON: If we could pull that up,</p> <p>22 and go to the top of the first page.</p> <p>23 BY MS. PETERSON:</p> <p>24 Q. Okay. So in the first section we have</p> <p>25 the test objective stated here; correct?</p>

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23 (89 to 92)

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<p>89</p> <p>1 A. Yes, that's correct.</p> <p>2 Q. And did you formulate this objective for</p> <p>3 the test, or was this provided to you by Trutek?</p> <p>4 A. Well, that was kind of what was I asked</p> <p>5 to do, to determine surface charge.</p> <p>6 Q. So this summarizes what Trutek asked you</p> <p>7 to do in the testing; is that right?</p> <p>8 A. Yes, that's right.</p> <p>9 Q. Okay. So you were asked to determine</p> <p>10 the magnitude, meaning the amount, of the surface</p> <p>11 electrostatic charge by means of application of a</p> <p>12 solution serum and spray containing permanently</p> <p>13 ionized molecules; is that correct?</p> <p>14 A. Uh-huh. Yes, that's correct.</p> <p>15 Q. Okay. So you weren't just asked to</p> <p>16 determine whether the solution, serum, and spray</p> <p>17 exhibited a surface electrostatic charge, but you</p> <p>18 were also asked to determine the magnitude or the</p> <p>19 amounts of that charge; right?</p> <p>20 A. Yes, that's right.</p> <p>21 Q. Okay. And you weren't asked to just</p> <p>22 determine whether the solution, serum, and spray</p> <p>23 exhibited an electrostatic charge, but rather what</p> <p>24 the amount of that charge would be when it was</p> <p>25 applied to a surface; correct?</p>	<p>91</p> <p>1 see that?</p> <p>2 A. Uh-huh.</p> <p>3 Q. Yes?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. So the metal box --</p> <p>6 MR. KREMEN: Where is that, Liane?</p> <p>7 MS. PETERSON: Excuse me, Stan?</p> <p>8 MR. KREMEN: Where do you see that? Are</p> <p>9 you talking about the photograph below?</p> <p>10 MS. PETERSON: No, I'm just talking</p> <p>11 about the language that's written under "Apparatus</p> <p>12 Setup."</p> <p>13 MR. KREMEN: Metal box. Okay. Right.</p> <p>14 Okay. I see it. Okay.</p> <p>15 BY MS. PETERSON:</p> <p>16 Q. Okay. So, Dr. Ermakov, the metal box</p> <p>17 containing the test sample spinner and the sensing</p> <p>18 electrode, that would be the equipment or the</p> <p>19 apparatus that you put together yourself; correct?</p> <p>20 A. Yes, that's correct.</p> <p>21 Q. Okay. And then that metal box was</p> <p>22 connected to a Keithley Instruments 823 Nanovolt</p> <p>23 Amplifier; right?</p> <p>24 A. Yes, that's right.</p> <p>25 Q. So that was a piece of equipment that</p>
<p>90</p> <p>1 A. Well, I was asked to determine</p> <p>2 whether -- like about the order of magnitude of</p> <p>3 the charge, not to do exact measurement.</p> <p>4 Q. But the objective here says that you</p> <p>5 were asked to determine the magnitude of the</p> <p>6 charge?</p> <p>7 A. Yes.</p> <p>8 Q. And the amount of the charge; right?</p> <p>9 A. Yeah, that's right. Yeah.</p> <p>10 Q. Okay. And you were asked to determine</p> <p>11 the amount of the charge upon its application to a</p> <p>12 substrate; correct?</p> <p>13 A. Yes, that's correct.</p> <p>14 Q. So it wasn't just the amount of the</p> <p>15 charge exhibited by the solution, serum, and</p> <p>16 spray, but rather the amount of charge that was</p> <p>17 exhibited once applied to some material; correct?</p> <p>18 A. Yes, that's correct.</p> <p>19 Q. Okay. And then in the next section,</p> <p>20 we've got a description of your apparatus setup;</p> <p>21 right?</p> <p>22 A. Uh-huh.</p> <p>23 Q. Okay. And I see that we have a</p> <p>24 reference here to a metal box containing a test</p> <p>25 sample spinner and a sensing electrode. Do you</p>	<p>92</p> <p>1 you had acquired from some other manufacturer;</p> <p>2 correct?</p> <p>3 A. Yes, that's correct.</p> <p>4 Q. Okay. But apart from the Keithley</p> <p>5 Instruments 823 Nanovolt Amplifier, you</p> <p>6 constructed yourself everything else that was part</p> <p>7 of the apparatus; right?</p> <p>8 A. Yes, that's right.</p> <p>9 Q. Okay.</p> <p>10 MS. PETERSON: If we could scroll down.</p> <p>11 BY MS. PETERSON:</p> <p>12 Q. So Figure 2, that contains a photo of</p> <p>13 the apparatus; right?</p> <p>14 A. Uh-huh.</p> <p>15 Q. Yes?</p> <p>16 A. Yes.</p> <p>17 Q. Okay. And then at the very bottom of</p> <p>18 the page, you indicate that the sensing electrode</p> <p>19 was made of 1.3-millimeter diameter copper wire.</p> <p>20 So how did you choose to construct the</p> <p>21 sensing electrode out of 1.3-millimeter diameter</p> <p>22 copper wire?</p> <p>23 A. Well, that was optimum diameter of the</p> <p>24 wire that can be easily formed into required shape</p> <p>25 yet remains steady and wouldn't change its shape</p>

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<p style="text-align: right;">93</p> <p>1 during use.</p> <p>2 Q. Okay. And how did you determine what</p> <p>3 the optimum diameter would be and what the</p> <p>4 required shape should be?</p> <p>5 A. Well, the shape -- well, obviously, they</p> <p>6 wanted some electrode that would be in a close</p> <p>7 proximity to half of the sample. So that's the</p> <p>8 shape. So when the box is closed and this part of</p> <p>9 the wire that you can see bent upward here will be</p> <p>10 very close to the sample surface.</p> <p>11 Q. Okay. And how did you determine the</p> <p>12 optimum diameter of the wire?</p> <p>13 A. It's just from experimental -- from</p> <p>14 experience from the different diameters of the</p> <p>15 wires. Any thicker wire would be difficult to</p> <p>16 bend and form into the required shape than thinner</p> <p>17 one would bend by itself if you accidentally touch</p> <p>18 on it or something like that. And there's a</p> <p>19 certain choice of wires that I had on hand. So</p> <p>20 this one was the only one that I could use that</p> <p>21 satisfied all the requirements.</p> <p>22 Q. Okay. And was that -- that copper wire</p> <p>23 that you used, was that something that you already</p> <p>24 had in your possession, or did you have to acquire</p> <p>25 it for this test?</p>	<p style="text-align: right;">95</p> <p>1 simple physics. It doesn't require any reference</p> <p>2 or anything other than a textbook.</p> <p>3 Q. But I just wanted to confirm that you</p> <p>4 did not base this apparatus setup on any</p> <p>5 particular scientific publication or literature --</p> <p>6 A. No.</p> <p>7 Q. -- where you had seen the same apparatus</p> <p>8 being used for measuring surface electrostatic</p> <p>9 charge?</p> <p>10 A. No, that was completely new design. I'm</p> <p>11 not aware of any.</p> <p>12 Q. Okay. And did you do anything to</p> <p>13 calibrate this apparatus before the testing?</p> <p>14 A. Well, calibration was purely based on</p> <p>15 the measurements of the dimensions of electrodes</p> <p>16 and capacitance of all this stuff, and it was</p> <p>17 calculated.</p> <p>18 Q. So you're talking about the calibration</p> <p>19 was purely based on the measurements that you</p> <p>20 conducted over the course of the testing?</p> <p>21 A. Yeah, it was calculated calibration.</p> <p>22 Q. Okay. So you didn't do any specific</p> <p>23 calibration of the apparatus or the equipment</p> <p>24 prior to taking your measurements?</p> <p>25 A. No, that would require some known</p>
<p style="text-align: right;">94</p> <p>1 A. Yeah, that's something I already had on</p> <p>2 hand.</p> <p>3 Q. Okay. So it was the best diameter and</p> <p>4 material that you had available to you when you</p> <p>5 did the testing?</p> <p>6 A. Yeah, that's correct.</p> <p>7 Q. Okay. And how did you determine that it</p> <p>8 would be appropriate to use copper wire as the</p> <p>9 material?</p> <p>10 A. Well, any conductive wire would do. So</p> <p>11 copper has certain properties that are</p> <p>12 advantageous for this application. Most</p> <p>13 importantly, I could shape it into the shape I</p> <p>14 wanted, and it would remain that shape. But,</p> <p>15 otherwise, any metal wire will produce the exact</p> <p>16 same result if it can be shaped into this.</p> <p>17 Q. And this apparatus setup that you</p> <p>18 constructed, was that based on any scientific</p> <p>19 publications or literature that you reviewed</p> <p>20 describing a similar apparatus being used for</p> <p>21 measuring surface electrostatic charge?</p> <p>22 A. No, it just -- it employs several</p> <p>23 different -- several techniques that are used for</p> <p>24 surface measurements, not maybe exactly surface</p> <p>25 charge. But, otherwise, it's based on some really</p>	<p style="text-align: right;">96</p> <p>1 sample, which I don't have.</p> <p>2 Q. Okay. So you did not calibrate the</p> <p>3 equipment using a known sample of a known surface</p> <p>4 charge.</p> <p>5 A. No. And that was not actually required</p> <p>6 because the purpose was mostly to compare one</p> <p>7 sample to another.</p> <p>8 Q. Okay.</p> <p>9 A. And that doesn't require any</p> <p>10 calibration, just make sure that they're getting</p> <p>11 some reading. That's all.</p> <p>12 Q. Okay. But if we go back up and look at</p> <p>13 the test objective, your test objective was not to</p> <p>14 compare measurements. Your test objective was to</p> <p>15 measure and determine the magnitude and the amount</p> <p>16 of the electrostatic charge; right?</p> <p>17 A. Yes. That's what I did, yeah.</p> <p>18 Q. Okay. So even though you were asked to</p> <p>19 determine the magnitude and amount of the charge,</p> <p>20 you did not calibrate the equipment with a known</p> <p>21 standard of a known charge; right?</p> <p>22 A. Yes, that's right.</p> <p>23 Q. Okay. Did you perform any tests before</p> <p>24 running your measurements to make sure that the</p> <p>25 equipment was operating correctly?</p>

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<p>97</p> <p>1 A. Yes, I tested it in on a blank sample</p> <p>2 and some samples that I could come up with and see</p> <p>3 whether it produces any measured -- measurable</p> <p>4 signal. It was performing really well with all</p> <p>5 the requirements that I could think of.</p> <p>6 Q. Okay. Let's go to the second page up at</p> <p>7 the top. And here we have a Section 3 titled</p> <p>8 "Method."</p> <p>9 Do you see that?</p> <p>10 A. Uh-huh. Yes.</p> <p>11 Q. Okay. So under "Method," you indicate</p> <p>12 in your report that using your apparatus, "the</p> <p>13 amount of surface charge can be determined by</p> <p>14 means of measurement of induced image charges in</p> <p>15 the sensing electrode."</p> <p>16 Is that an accurate statement of the</p> <p>17 theory underlying your method?</p> <p>18 A. Yes, that's accurate.</p> <p>19 Q. Okay. And then you go on to say that,</p> <p>20 "The polarity of charge, i.e. cationic or anionic,</p> <p>21 was not the objective of this test measurement."</p> <p>22 Why is that?</p> <p>23 A. Because that would require some</p> <p>24 enhancement of the apparatus in order to</p> <p>25 determine. So you just measured presence of any</p>	<p>99</p> <p>1 know whether that charge is positive or negative;</p> <p>2 correct?</p> <p>3 A. Correct.</p> <p>4 Q. Okay. In other words, we don't know if</p> <p>5 the charge is cationic -- or we don't know if the</p> <p>6 composition is cationic or anionic; right?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. Do you know if printer paper is a</p> <p>9 commonly used substrate for testing the</p> <p>10 electrostatic surface charge of liquids?</p> <p>11 A. Well, I don't have much knowledge of</p> <p>12 other instances where someone needed to test the</p> <p>13 charge of some substance. So I don't have that</p> <p>14 information.</p> <p>15 Q. Okay. And then looking at the list of</p> <p>16 the product test samples now on this second page,</p> <p>17 I see there are two Trutek products listed;</p> <p>18 correct?</p> <p>19 A. Yes, that's correct.</p> <p>20 Q. Do you know when the Trutek NasalGuard</p> <p>21 samples were manufactured?</p> <p>22 A. No, I don't know.</p> <p>23 Q. Do you know what their expiration date</p> <p>24 was?</p> <p>25 MR. KREMEN: Objection to the form.</p>
<p>98</p> <p>1 charge.</p> <p>2 Q. Okay. So your apparatus only measured</p> <p>3 the presence of charge and the amount of charge,</p> <p>4 but not the polarity of the charge; is that</p> <p>5 correct?</p> <p>6 A. Yeah, that's correct.</p> <p>7 Q. Okay. So the results that you report,</p> <p>8 we don't know if those are positive charges or</p> <p>9 negative charges; right?</p> <p>10 A. Yeah. Well, from the measurement</p> <p>11 itself, we don't know. But from what the</p> <p>12 chemicals are that I -- supposed to have a</p> <p>13 positive charge. So --</p> <p>14 Q. But you don't know what those chemicals</p> <p>15 are. So just based on your testing alone --</p> <p>16 A. Right.</p> <p>17 Q. -- we don't --</p> <p>18 A. Yes. So that's why there's this phrase</p> <p>19 in there.</p> <p>20 Q. Okay. If you could just let me finish</p> <p>21 my question, please, before you start talking, I</p> <p>22 would appreciate it.</p> <p>23 Okay. So just based on your testing and</p> <p>24 the measurements alone, we don't know whether the</p> <p>25 charge that you reported and measured, we don't</p>	<p>100</p> <p>1 THE WITNESS: No, I don't know anything</p> <p>2 about the sample.</p> <p>3 BY MS. PETERSON:</p> <p>4 Q. Do you know what lot number or batch</p> <p>5 number the Trutek NasalGuard products came from?</p> <p>6 MR. KREMEN: Same objection.</p> <p>7 THE WITNESS: No, I don't know.</p> <p>8 MS. PETERSON: Stan, what's the basis</p> <p>9 for your objection to that question?</p> <p>10 MR. KREMEN: It is -- there's a lack of</p> <p>11 foundation there.</p> <p>12 MS. PETERSON: Okay. And that's based</p> <p>13 on Dr. Ermakov's statement that he doesn't know</p> <p>14 anything about the source of the samples?</p> <p>15 MR. KREMEN: That is correct.</p> <p>16 MS. PETERSON: Okay.</p> <p>17 BY MS. PETERSON:</p> <p>18 Q. Dr. Ermakov, do you know when the</p> <p>19 BlueWillow NanoBio Protect product was</p> <p>20 manufactured?</p> <p>21 A. No, I don't know.</p> <p>22 Q. Okay. And do you know when or what the</p> <p>23 expiration date was of the BlueWillow NanoBio</p> <p>24 Protect product?</p> <p>25 A. No, I don't know.</p>

Transcript of Alexei Ermakov, Ph.D.

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<p>101</p> <p>1 Q. And do you know what lot number or batch</p> <p>2 number the BlueWillow NanoBio Protect product came</p> <p>3 from?</p> <p>4 A. No, I don't know.</p> <p>5 Q. Okay.</p> <p>6 MS. PETERSON: If we could look at the</p> <p>7 second paragraph under "Method."</p> <p>8 BY MS. PETERSON:</p> <p>9 Q. In the second sentence, you state that,</p> <p>10 "Each of these samples was prepared by coating the</p> <p>11 test product on 1-inch square substrate by a</p> <p>12 product under test."</p> <p>13 Do you see that?</p> <p>14 A. Yes.</p> <p>15 Q. So the 1-inch square substrate, that</p> <p>16 would be the entire piece of the paper that was</p> <p>17 placed on your apparatus; right?</p> <p>18 A. Yeah, that's the whole paper.</p> <p>19 Q. Okay. And in your report here, I don't</p> <p>20 see any reference to what portion of that 1-inch</p> <p>21 square paper was coated with the test product.</p> <p>22 A. Well, there's an indirect reference in</p> <p>23 the method description. It has to be half of the</p> <p>24 substrate.</p> <p>25 Q. Okay. How is there an indirect</p>	<p>103</p> <p>1 supposed to be represented by those, I guess, red</p> <p>2 dots?</p> <p>3 A. Red dots, yeah, those represent charges.</p> <p>4 Q. Okay. Okay.</p> <p>5 A. And another reference to coating half of</p> <p>6 the sample is in the description, verbal</p> <p>7 description, how it operates. It says that the</p> <p>8 charges move in and out as the sample rotates.</p> <p>9 It's where the formula is.</p> <p>10 Q. Okay.</p> <p>11 A. It's on page 2 at the bottom.</p> <p>12 Q. Okay. I see that.</p> <p>13 A. Yeah.</p> <p>14 MS. PETERSON: So if we could go back up</p> <p>15 to the sample preparation, which is at the top of</p> <p>16 this page. Yeah.</p> <p>17 BY MS. PETERSON:</p> <p>18 Q. So the samples were prepared by coating</p> <p>19 the test product on the -- on one half of each</p> <p>20 1-inch square substrate of paper.</p> <p>21 Did you prepare all four substrates and</p> <p>22 then measure them, or did you prepare one, measure</p> <p>23 it, and then prepare a second and measure it?</p> <p>24 Do you understand what I'm asking?</p> <p>25 A. Uh-huh.</p>
<p>102</p> <p>1 reference to that? What are you -- what part of</p> <p>2 your report are you talking about?</p> <p>3 A. There are at least two places. One is</p> <p>4 when you look at the diagram on the apparatus, we</p> <p>5 can see the charge is only one half of the sample.</p> <p>6 Another --</p> <p>7 Q. I'm sorry, can you stop right there.</p> <p>8 You said one is when you look at the diagram of</p> <p>9 the apparatus?</p> <p>10 A. Yes, if you scroll up to the diagram,</p> <p>11 there's clearly -- clearly shows the charge is</p> <p>12 present on one half of the sample.</p> <p>13 Q. Can you point to me exactly on what</p> <p>14 you're talking about?</p> <p>15 A. Well, if you scroll up to the diagram,</p> <p>16 which is Figure 1.</p> <p>17 MR. KREMEN: Which diagram are we</p> <p>18 talking about, the photograph or the diagram?</p> <p>19 THE WITNESS: The diagram, apparatus</p> <p>20 setup.</p> <p>21 BY MS. PETERSON:</p> <p>22 Q. Okay. So can you explain this diagram?</p> <p>23 A. So there's a substrate and coated sample</p> <p>24 is clearly on one half of the substrate.</p> <p>25 Q. Oh, okay. So the coated sample is</p>	<p>104</p> <p>1 MR. KREMEN: Form.</p> <p>2 BY MS. PETERSON:</p> <p>3 Q. What did you do?</p> <p>4 A. The samples were prepared, dried up for</p> <p>5 a while and then measured.</p> <p>6 Q. Okay. So you prepared all four samples,</p> <p>7 and then you let them dry?</p> <p>8 A. Uh-huh.</p> <p>9 Q. Is that a "yes"?</p> <p>10 A. Yes.</p> <p>11 Q. Okay. How long did you let them dry</p> <p>12 for?</p> <p>13 A. Well, until they looked dry. About</p> <p>14 ten minutes, maybe.</p> <p>15 Q. How did you know they were dry at that</p> <p>16 point?</p> <p>17 A. Well, I just -- visually they looked</p> <p>18 dry.</p> <p>19 Q. So visually they looked dry?</p> <p>20 A. Uh-huh.</p> <p>21 Q. Yes?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. So you waited approximately</p> <p>24 ten minutes for the samples to dry, and then you</p> <p>25 measured them; correct?</p>

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<p>105</p> <p>1 A. That's correct. That's correct, yeah.</p> <p>2 Q. And then for that measurement process</p> <p>3 where the samples are spinning, how long did that</p> <p>4 take for each sample?</p> <p>5 A. It takes about a minute.</p> <p>6 Q. Okay. How did you determine that</p> <p>7 ten minutes would be an appropriate time to take</p> <p>8 an accurate measurement of each sample?</p> <p>9 A. Well, they looked dry, and then during</p> <p>10 the measurement, I observed --</p> <p>11 Q. You know, I'm not asking about the</p> <p>12 drying time here. I'm asking about the</p> <p>13 measurement process.</p> <p>14 A. Oh, measurement.</p> <p>15 Q. You allowed the samples to spin on the</p> <p>16 apparatus for ten minutes, you said?</p> <p>17 A. Oh, one minute.</p> <p>18 Q. Oh, one minute.</p> <p>19 A. Uh-huh.</p> <p>20 Q. Okay.</p> <p>21 A. Just as long as it takes to see the</p> <p>22 reading on the oscilloscope and just confirm that</p> <p>23 it's stable, it doesn't kind of change in any</p> <p>24 direction quickly.</p> <p>25 Q. Okay. So you were able to confirm over</p>	<p>107</p> <p>1 A. Yes, that's correct.</p> <p>2 Q. Okay. So did you take -- did you</p> <p>3 prepare one test substrate for each sample and</p> <p>4 test it three times?</p> <p>5 A. No, three substrates for each sample.</p> <p>6 Q. Okay. So you prepared three substrates</p> <p>7 for each test sample and then ran each of those</p> <p>8 substrates one time?</p> <p>9 A. Yes, that's correct.</p> <p>10 Q. Okay. So you did not repeat the</p> <p>11 measurement with the same test sample more than</p> <p>12 once?</p> <p>13 A. Well, that's -- as experience showed</p> <p>14 that there was no difference in the reading, like</p> <p>15 we have done this with one sample.</p> <p>16 Q. What --</p> <p>17 A. We didn't expect any change either. So</p> <p>18 there's no reason for the readings to change. So</p> <p>19 you get the exact same reading.</p> <p>20 Q. Okay. So you didn't run any additional</p> <p>21 replicates of the samples because you didn't</p> <p>22 expect there to be any change in the reading?</p> <p>23 A. That's correct, yeah.</p> <p>24 Q. Okay. How did you place the samples on</p> <p>25 to the spinner?</p>
<p>106</p> <p>1 just a period of one minute that the readings were</p> <p>2 stable and didn't change in any direction quickly?</p> <p>3 A. Uh-huh. Yes.</p> <p>4 Q. Yes?</p> <p>5 A. That's correct. Uh-huh.</p> <p>6 Q. Did you run any of the samples for a</p> <p>7 longer period of time to see if you got different</p> <p>8 results?</p> <p>9 A. Yes. And, in fact, I tried to run</p> <p>10 samples, like, a while later and got the exact</p> <p>11 same result. So there was no point. Once this</p> <p>12 signal is stable, it doesn't change.</p> <p>13 Q. And did you run each of the samples for</p> <p>14 the exact same amount of time?</p> <p>15 A. Yes. That's what I did, yeah.</p> <p>16 Q. And so did you use, like, a stopwatch or</p> <p>17 a timer to measure that?</p> <p>18 A. I used my watch.</p> <p>19 Q. Okay.</p> <p>20 MS. PETERSON: Could we go to the next</p> <p>21 page, please.</p> <p>22 BY MS. PETERSON:</p> <p>23 Q. So I see here under -- in the table with</p> <p>24 the results that for each product you have three</p> <p>25 measurements reported; correct?</p>	<p>108</p> <p>1 A. They are being held in place with a tiny</p> <p>2 magnet that clamped down the paper.</p> <p>3 Q. Okay. But, I mean, how did you</p> <p>4 physically get the paper -- how did you move it</p> <p>5 from wherever you prepared the paper to place it</p> <p>6 onto the spinner?</p> <p>7 A. Yeah, we used tweezers to place the</p> <p>8 paper. I think it's in my report, actually.</p> <p>9 Q. Okay. And why did you use -- why did</p> <p>10 you select to use tweezers to do that?</p> <p>11 A. Just to avoid any possibility of</p> <p>12 depositing any charges from, like, handling it</p> <p>13 with hands because it's a common practice not to</p> <p>14 use your hands when handling any samples that --</p> <p>15 for sensitive measurements because you can deposit</p> <p>16 some oils from your hands and stuff like that.</p> <p>17 Q. Okay.</p> <p>18 A. It will produce some signal and so on.</p> <p>19 Q. Okay. And in the -- I believe somewhere</p> <p>20 else in your report you mentioned that the</p> <p>21 electrode was about 1.5 millimeters above the</p> <p>22 sample surface once the lid on the box was closed;</p> <p>23 is that right?</p> <p>24 A. Uh-huh. Yeah, that's right.</p> <p>25 Q. Okay. Does -- did the box -- the lid on</p>

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<p style="text-align: right;">109</p> <p>1 the box need to be closed to take the</p> <p>2 measurements, or was that done just because the</p> <p>3 electrode was mounted to the lid?</p> <p>4 A. No, it had to be closed. Actually, the</p> <p>5 box does it on purpose on this instrument. And</p> <p>6 the fact that it's a metal box, it provides very</p> <p>7 good shielding against any external electrical</p> <p>8 fields. So it has to be closed -- well, it's</p> <p>9 quite obvious from operation of the instrument.</p> <p>10 When the box is open, you can see some signal</p> <p>11 picked up from just from the air. When it's</p> <p>12 closed, there's zero.</p> <p>13 Q. Okay. Was the box sealed in any way so</p> <p>14 that no air could enter?</p> <p>15 A. No, it was not sealed.</p> <p>16 Q. Did you do anything to, like, remove the</p> <p>17 ambient air from the box before running the</p> <p>18 experiment?</p> <p>19 A. No, it had ambient air in it.</p> <p>20 Q. Okay.</p> <p>21 MS. PETERSON: Let's scroll down to the</p> <p>22 bottom of this page for the conclusion.</p> <p>23 BY MS. PETERSON:</p> <p>24 Q. So I see you have two points listed here</p> <p>25 under your conclusion. The first conclusion you</p>	<p style="text-align: right;">111</p> <p>1 Q. Ten times. Okay.</p> <p>2 So if the results were more than --</p> <p>3 A. Ten times more or ten times less, yeah,</p> <p>4 then you can say that.</p> <p>5 Q. Okay. If the results were more than an</p> <p>6 order of magnitude apart, what would that tell you</p> <p>7 about the surface charge exhibited by the two</p> <p>8 products?</p> <p>9 A. Well, then we can say that the products</p> <p>10 have different charges with more than order of</p> <p>11 magnitude difference. For example, if some</p> <p>12 product doesn't create a charge, then that would</p> <p>13 be obvious.</p> <p>14 Q. If there was a 100-fold difference in</p> <p>15 order of magnitude, would that be pretty</p> <p>16 significant to you?</p> <p>17 A. Yes, certainly, yes.</p> <p>18 Q. If you got 100-fold difference in order</p> <p>19 of magnitude using the same product and the same</p> <p>20 test method, would that suggest perhaps that</p> <p>21 there's a flaw in the method or that the method is</p> <p>22 inaccurate?</p> <p>23 A. Well, if you're using the same method</p> <p>24 and same protocol and you get the difference, then</p> <p>25 you certainly should be looking for some reason</p>
<p style="text-align: right;">110</p> <p>1 reached was that the test products all</p> <p>2 demonstrated the presence of a surface</p> <p>3 electrostatic charge; correct?</p> <p>4 A. Yes, that's correct.</p> <p>5 Q. Okay. And then your second conclusion</p> <p>6 says that, "The surface electrostatic charge</p> <p>7 measured was determined to be approximately (in</p> <p>8 order of magnitude) similar in all three product</p> <p>9 samples tested."</p> <p>10 Do you see that?</p> <p>11 A. Yes, that's correct.</p> <p>12 Q. Why did you compare the measurement of</p> <p>13 the charge across the samples on the basis of</p> <p>14 their order of magnitude?</p> <p>15 A. Well, the purpose was to measure the</p> <p>16 charge. And as you can see from the measurements,</p> <p>17 there was some variation. So this conclusion says</p> <p>18 what we can determine for sure, that it's</p> <p>19 definitely within the order of magnitude.</p> <p>20 Q. Okay. And by "order of magnitude,"</p> <p>21 you're talking about like a --</p> <p>22 A. Like times ten.</p> <p>23 Q. I'm sorry, what?</p> <p>24 A. Order of magnitude means that it's ten</p> <p>25 times.</p>	<p style="text-align: right;">112</p> <p>1 why the difference has happened.</p> <p>2 Q. And if there is such a difference when</p> <p>3 you're using the same product and the same method,</p> <p>4 would that suggest that the method is unreliable</p> <p>5 or inaccurate?</p> <p>6 MR. KREMEN: Objection to form.</p> <p>7 THE WITNESS: Not necessarily. There</p> <p>8 might be some factors that -- the method itself</p> <p>9 might be accurate, but there could be something</p> <p>10 else that affects the measurements.</p> <p>11 BY MS. PETERSON:</p> <p>12 Q. Like what?</p> <p>13 A. Like, I don't know, the product is not</p> <p>14 the same or something else. Some factors that are</p> <p>15 not accounted for.</p> <p>16 Q. But if the product is the same, then one</p> <p>17 reason that could account for 100-fold difference</p> <p>18 could be an indication about a problem with the</p> <p>19 method; right?</p> <p>20 MR. KREMEN: Objection to form.</p> <p>21 THE WITNESS: It could be -- well, not</p> <p>22 necessarily. You have to be more specific with</p> <p>23 what kind of measurement is done, what kind of</p> <p>24 method, what preparation of the sample.</p> <p>25</p>

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<p>1 BY MS. PETERSON:</p> <p>2 Q. Yeah, I understand you're saying it</p> <p>3 isn't necessarily a result of the method, but it</p> <p>4 could be the result of the method; right?</p> <p>5 MR. KREMEN: Same objection.</p> <p>6 THE WITNESS: Well, if the method takes</p> <p>7 this, it implies that it's reliable to a certain</p> <p>8 degree. So if you get 100-fold difference and the</p> <p>9 method already proven to give -- test proven that</p> <p>10 it's accurate, let's say within one order of</p> <p>11 magnitude, then there might be some other reason</p> <p>12 for two orders of magnitude difference, not the</p> <p>13 method.</p> <p>14 BY MS. PETERSON:</p> <p>15 Q. Yeah, and I'm not talking about your</p> <p>16 method specifically here. So I think your answer</p> <p>17 that you just gave, that was based on the results</p> <p>18 that you got that were within the same order of</p> <p>19 magnitude; right?</p> <p>20 A. Uh-huh.</p> <p>21 Q. Yes?</p> <p>22 A. Yes.</p> <p>23 Q. I'm just saying generally speaking, if</p> <p>24 someone were to develop a new method and tried it</p> <p>25 a couple of times following the same method with</p>	<p>113</p> <p>1 Q. So where it says IN.SQ., that's square</p> <p>2 inch; right?</p> <p>3 A. Yes, that's correct.</p> <p>4 Q. Okay. So just to confirm, you reported</p> <p>5 the charge in coulombs per square inch; right?</p> <p>6 A. Uh-huh. Yes.</p> <p>7 Q. And how did you determine that error</p> <p>8 range that's associated for each of the --</p> <p>9 A. Well, that's just -- just for</p> <p>10 illustration purposes. That's error of sample</p> <p>11 voltage measurement translated to the end results.</p> <p>12 That's all there is. So, actually, error might be</p> <p>13 much larger than that. There are other factors</p> <p>14 and measurements of the volts contributing to</p> <p>15 uncertainty off the end result.</p> <p>16 Q. Okay. So the error range that's</p> <p>17 reported in your charge column was for</p> <p>18 illustration purposes, and it came from the error</p> <p>19 range indicated for the volts?</p> <p>20 A. Volts, yes. Uh-huh.</p> <p>21 Q. But there could be other error that</p> <p>22 might have -- that might contribute to uncertainty</p> <p>23 in the end result. Is that what you said?</p> <p>24 A. Yes, that's exactly.</p> <p>25 Q. Okay. And that additional error is not</p>
<p>114</p> <p>1 the same product and got results that differed by,</p> <p>2 like, 100-fold order of magnitude, that could</p> <p>3 suggest that there's a problem with the method;</p> <p>4 right?</p> <p>5 MR. KREMEN: Same objection.</p> <p>6 THE WITNESS: Well, I guess it could</p> <p>7 suggest. But, again, I have to get more specific</p> <p>8 on what kind of method and what measurement of</p> <p>9 sample preparations.</p> <p>10 BY MS. PETERSON:</p> <p>11 Q. Okay. And looking at --</p> <p>12 MS. PETERSON: And if we could scroll</p> <p>13 back up so we could see the whole table, please.</p> <p>14 BY MS. PETERSON:</p> <p>15 Q. Looking at your results now, you have</p> <p>16 the three measurements reported for each sample,</p> <p>17 and then you take the average; right?</p> <p>18 A. Uh-huh. Yes.</p> <p>19 Q. And for the charge that you report,</p> <p>20 that's reported in coulombs per square inch; is</p> <p>21 that correct?</p> <p>22 A. Square centimeter.</p> <p>23 Q. I'm looking at the --</p> <p>24 A. Oh, inch, yeah. Yes, that's correct.</p> <p>25 Yes.</p>	<p>115</p> <p>1 accounted for in your charge column in your table</p> <p>2 of results in Exhibit 27; correct?</p> <p>3 A. Yes, that's correct. But you can see</p> <p>4 the difference, like, in a second product where</p> <p>5 it's quite a lot because -- most likely because a</p> <p>6 different amount of product was on a sample.</p> <p>7 Q. Which product are you referring to?</p> <p>8 A. TTK-APB, the second after blank -- I</p> <p>9 mean, the next after blank. Well, actually, I can</p> <p>10 see it's all of them. There's quite significant</p> <p>11 variation. And that's expected because we didn't</p> <p>12 put exact same amount of each product on the</p> <p>13 substrate.</p> <p>14 Q. Okay. And then you report the average</p> <p>15 for each test product; right?</p> <p>16 A. Uh-huh. Yes.</p> <p>17 Q. And it looks like the average charge for</p> <p>18 the two Trutek products is greater than the</p> <p>19 BlueWillow NanoBio Protect product; correct?</p> <p>20 A. Well, yes, but the uncertainty of this</p> <p>21 measurement -- for certain -- for certain I can</p> <p>22 say it's within an order of magnitude accuracy.</p> <p>23 Q. But the average result that you've</p> <p>24 reported, certainly it is greater for both of the</p> <p>25 NasalGuard products than the BlueWillow product;</p>

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<p>1 correct?</p> <p>2 A. Yes, that's correct.</p> <p>3 Q. Okay. And that charge, I think you said</p> <p>4 that's a property of the composition; right?</p> <p>5 A. Yes, that's right.</p> <p>6 Q. So if you were to test these same</p> <p>7 products using a different method, you would</p> <p>8 expect to see that same result, with one product</p> <p>9 exhibiting a higher charge than the other product;</p> <p>10 right?</p> <p>11 MR. KREMEN: Objection to form.</p> <p>12 THE WITNESS: Yeah, with this kind of a</p> <p>13 difference, there might be other factors in play,</p> <p>14 like amount of product in a test sample. It could</p> <p>15 easily be, like, twice as much of product in one</p> <p>16 sample than another sample.</p> <p>17 BY MS. PETERSON:</p> <p>18 Q. Okay. What other kind of factors might</p> <p>19 come into play?</p> <p>20 A. Well, mostly amount of the chemical</p> <p>21 because the other factors are pretty much the same</p> <p>22 for all the samples and measurements. Only</p> <p>23 difference between them, the variable is how much</p> <p>24 of the chemical is on the sample.</p> <p>25 Q. Okay. You said that the other factors</p>	<p>117</p> <p>1 A. I think so. Because, again, it's saying</p> <p>2 similar difference for different samples of the</p> <p>3 same product.</p> <p>4 Q. So if you had applied even more of the</p> <p>5 NasalGuard product to the substrate, would you</p> <p>6 have expected to see a charge that was a tenfold</p> <p>7 greater than BlueWillow?</p> <p>8 A. Well, I guess -- well, if it -- if you</p> <p>9 could physically do that. There are some limits,</p> <p>10 just physical limitations how much you can apply.</p> <p>11 If you applied ten times less, then you would get</p> <p>12 ten times less signal. That's for sure. Ten</p> <p>13 times more, that's difficult to do, because it</p> <p>14 will just kind of drip. While the sample is</p> <p>15 spinning, it will fly off the surface.</p> <p>16 Q. Okay. So, basically, the amount of</p> <p>17 charge that you measured is proportional to the</p> <p>18 amount of the test product that was applied to the</p> <p>19 substrate?</p> <p>20 A. Yes.</p> <p>21 MR. KREMEN: Objection to form.</p> <p>22 BY MS. PETERSON:</p> <p>23 Q. Okay. I apologize if I already asked</p> <p>24 you this, but after you prepared this report and</p> <p>25 finalized it, did anybody from Trutek or Trutek's</p>
<p>118</p> <p>1 are pretty much the same for all the samples and</p> <p>2 measurements. What are you referring to there?</p> <p>3 Are you comparing these results to something else?</p> <p>4 A. This results between themselves, within</p> <p>5 this set of measurements.</p> <p>6 Q. Okay.</p> <p>7 A. So if you want to compare one product to</p> <p>8 another, well, you can easily do this. But the</p> <p>9 difference -- 50 percent difference. Like here it</p> <p>10 could be accounted for with different amount of</p> <p>11 product.</p> <p>12 Q. And what exactly are you referring to as</p> <p>13 the 50 percent difference here? What numbers are</p> <p>14 you looking at?</p> <p>15 A. Like if you look at the charge, like if</p> <p>16 you have BlueWillow average charge 4 and minus 14</p> <p>17 and a half -- let's say the next one up is 7. So</p> <p>18 that's about -- that's the difference.</p> <p>19 Q. Okay. And so you're attributing that</p> <p>20 the -- or strike that.</p> <p>21 So in your opinion, that difference in</p> <p>22 the charge between the BlueWillow and the</p> <p>23 NasalGuard products is most likely a result of the</p> <p>24 amount of the product that was applied to the</p> <p>25 substrate?</p>	<p>119</p> <p>1 lawyers ask you to make any changes to the report?</p> <p>2 A. No. No one asked me to do any changing.</p> <p>3 Q. I don't see anything reported in your</p> <p>4 report about the temperature of the room where the</p> <p>5 measurement was taken. Do you know what the</p> <p>6 temperature was?</p> <p>7 A. It was 72 degrees.</p> <p>8 Q. How do you know that?</p> <p>9 A. Because I have a thermometer in my room,</p> <p>10 and the thermostat is set to that temperature.</p> <p>11 Q. Okay. And what about the relative</p> <p>12 humidity, did you happen to measure that?</p> <p>13 A. Yeah, it was about 40 percent. I</p> <p>14 measured that, too.</p> <p>15 Q. Okay. So you --</p> <p>16 A. None of that is relevant to this</p> <p>17 measurement.</p> <p>18 Q. Okay.</p> <p>19 A. Because the method measures a charge of</p> <p>20 the chemical regardless of external conditions.</p> <p>21 Q. Okay. But going back to the relative</p> <p>22 humidity, you actually measured the relative</p> <p>23 humidity in your office prior to conducting this</p> <p>24 test?</p> <p>25 A. Yes, I have a meter in my office.</p> <p>120</p>

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<p>121</p> <p>1 Q. Okay.</p> <p>2 A. And that was about -- that's how much</p> <p>3 humidity.</p> <p>4 Q. Okay. And is the relative humidity</p> <p>5 always set to 40 percent in your office?</p> <p>6 A. It depends on the kind of weather and</p> <p>7 everything.</p> <p>8 Q. So how do you know it was 40 percent on</p> <p>9 the day of this testing?</p> <p>10 A. Well, I happen to look at humidity that</p> <p>11 day.</p> <p>12 Q. Okay. So on someday in January 2021,</p> <p>13 when you conducted this test, you remember looking</p> <p>14 at the humidity meter, and you remember exactly</p> <p>15 what the humidity level was?</p> <p>16 A. Yeah, but that's what it is in</p> <p>17 wintertime. In the summertime, it could be</p> <p>18 8 percent.</p> <p>19 Q. Okay. So it's based on your</p> <p>20 recollection on what the humidity typically is in</p> <p>21 your office during wintertime?</p> <p>22 A. Uh-huh. Yes.</p> <p>23 Q. Yes? Okay.</p> <p>24 A. Uh-huh.</p> <p>25 Q. Are you aware of whether there are any</p>	<p>123</p> <p>1 record. The time is now 2:16 p.m.</p> <p>2 BY MS. PETERSON:</p> <p>3 Q. Thank you. Dr. Ermakov, just to</p> <p>4 double-check again, did you have any conversations</p> <p>5 with anybody during any of the breaks during the</p> <p>6 deposition today about your deposition testimony?</p> <p>7 A. No.</p> <p>8 Q. Okay. And then I just have one other</p> <p>9 point I want to clarify about your testing in the</p> <p>10 second round of testing that we've been talking</p> <p>11 about. So you prepared three paper substrates for</p> <p>12 each test sample; correct?</p> <p>13 A. Yes, that's correct.</p> <p>14 Q. Did you prepare any other substrates or</p> <p>15 samples that you measured that are not included in</p> <p>16 your report?</p> <p>17 A. No, I did not.</p> <p>18 Q. Okay. And then I have just one other</p> <p>19 document that I want to mark.</p> <p>20 MS. PETERSON: Can we pull up</p> <p>21 Dr. Ermakov's earlier report?</p> <p>22 Emily, this is the one that I uploaded.</p> <p>23 It's got an 11 in front of it.</p> <p>24 MR. KREMEN: And what is the exhibit</p> <p>25 number?</p>
<p>122</p> <p>1 standard test methods that would apply to testing</p> <p>2 products for electrostatic charge?</p> <p>3 A. No, I'm not aware of any methods that</p> <p>4 would report charge per square area.</p> <p>5 Q. Yeah, I'm not talking about a method</p> <p>6 that would report charge per square area. I'm</p> <p>7 asking are you aware of any standard test methods</p> <p>8 that would apply that you should follow when</p> <p>9 testing products for electrostatic charge?</p> <p>10 A. Well, I just created the standard method</p> <p>11 which is described in this report. That's what I</p> <p>12 follow.</p> <p>13 Q. Okay. So you didn't look to any</p> <p>14 guidance on any standard test methods that may</p> <p>15 apply to your procedure?</p> <p>16 A. There is no such guidance. That was</p> <p>17 first time created. So that's the protocol that</p> <p>18 we followed, what's described here in this report.</p> <p>19 Q. Okay.</p> <p>20 MS. PETERSON: Let's go off the record</p> <p>21 and take a short break.</p> <p>22 THE VIDEOGRAPHER: We're going off the</p> <p>23 record. The time is now 2:07 p.m.</p> <p>24 (Recess from the record.)</p> <p>25 THE VIDEOGRAPHER: We're back on the</p>	<p>124</p> <p>1 MS. PETERSON: We'll mark this as</p> <p>2 Exhibit 30.</p> <p>3 (Ermakov Deposition Exhibit 30 was</p> <p>4 marked for identification and attached to the</p> <p>5 transcript.)</p> <p>6 BY MS. PETERSON:</p> <p>7 Q. Okay. So Exhibit 30 is another report.</p> <p>8 MS. PETERSON: If you could scroll up to</p> <p>9 the top, please. Yeah.</p> <p>10 BY MS. PETERSON:</p> <p>11 Q. So this report is titled "Determination</p> <p>12 of Surface Electrostatic Charge on Nasal</p> <p>13 Application Test Products. Test Conducted and</p> <p>14 Report Prepared by Alexei Ermakov, Ph.D.</p> <p>15 (Physics), Sr. Consultant."</p> <p>16 MS. PETERSON: And if we could scroll</p> <p>17 down to the bottom of the page.</p> <p>18 BY MS. PETERSON:</p> <p>19 Q. The report is dated July 16, 2019.</p> <p>20 Dr. Ermakov, do you recognize this as</p> <p>21 the report that you prepared on July 16, 2019,</p> <p>22 with respect to your first round of testing that</p> <p>23 you conducted for Trutek?</p> <p>24 A. Yes.</p> <p>25 Q. Okay.</p>


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Transcript of Alexei Ermakov, Ph.D.

32 (125 to 128)

October 26, 2022

<p>125</p> <p>1 MS. PETERSON: And then if we could</p> <p>2 scroll to the final page.</p> <p>3 BY MS. PETERSON:</p> <p>4 Q. Is that your signature on the bottom of</p> <p>5 page 3?</p> <p>6 A. Yes, that's my signature.</p> <p>7 Q. Okay. Thank you.</p> <p>8 MS. PETERSON: Dr. Ermakov, thank you</p> <p>9 for your time today. I don't have any further</p> <p>10 questions for you at this time.</p> <p>11 THE WITNESS: Okay. You're welcome.</p> <p>12 THE VIDEOGRAPHER: Mr. Kremen, do you</p> <p>13 have any questions?</p> <p>14 MR. KREMEN: No, no cross-examination.</p> <p>15 MS. PETERSON: Okay. We can go off the</p> <p>16 record, please.</p> <p>17 THE VIDEOGRAPHER: All right. Just one</p> <p>18 moment, please.</p> <p>19 MR. KREMEN: Oh, I have one question,</p> <p>20 though --</p> <p>21 THE VIDEOGRAPHER: This marks --</p> <p>22 MR. KREMEN: I have a question --</p> <p>23 THE VIDEOGRAPHER: Do you want this on</p> <p>24 the record, Mr. Kremen?</p> <p>25 MR. KREMEN: No, let's take it off the</p>	<p>127</p> <p>1 ACKNOWLEDGEMENT</p> <p>2</p> <p>3 STATE OF MARYLAND)</p> <p>ss</p> <p>4 COUNTY OF MONTGOMERY)</p> <p>5</p> <p>6 I, ALEXEI ERMAKOV, PH.D.,</p> <p>7 hereby certify, I have read the transcript of my</p> <p>8 testimony taken under oath in my deposition of</p> <p>9 October 26, 2022; that the transcript is a true,</p> <p>10 complete and correct record of what was asked,</p> <p>11 answered and said during this deposition, and that</p> <p>12 the answers on the record as given by me are true</p> <p>13 and correct.</p> <p>14</p> <p>15 _____</p> <p>ALEXEI ERMAKOV, PH.D.</p> <p>16</p> <p>17</p> <p>18 Sworn and subscribed to before me</p> <p>19 this ____ day of _____, 2022.</p> <p>20</p> <p>21 _____</p> <p>Notary Public</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p>126</p> <p>1 record.</p> <p>2 THE VIDEOGRAPHER: This marks the end of</p> <p>3 the deposition of Dr. Alexei Ermakov. We're going</p> <p>4 off the record. The time is now 2:19 p.m.</p> <p>5 (Off the record at 2:19 p.m.)</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p>128</p> <p>1 STATE OF MARYLAND)</p> <p>2 ss:</p> <p>3 COUNTY OF MONTGOMERY)</p> <p>4</p> <p>5 I, Matthew Goldstein, Notary Public</p> <p>6 within and for the State of Maryland, do hereby</p> <p>7 certify:</p> <p>8</p> <p>9 That I reported the proceedings in the</p> <p>10 within entitled matter, and that the within</p> <p>11 transcript is a true record of said proceedings.</p> <p>12</p> <p>13 I further certify that I am not related</p> <p>14 to any of the parties to the action by blood or</p> <p>15 marriage, and that I am in no way interested in</p> <p>16 the outcome of this matter.</p> <p>17</p> <p>18 IN WITNESS WHEREOF, I have hereunto set</p> <p>19 my hand this 6th day of November, 2022.</p> <p>20</p> <p>21 </p> <p>22 Matthew Goldstein, RMR, CRR</p> <p>23</p> <p>24</p> <p>25</p>

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